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ABSTRACT

Included are a list and brief description of Research and Development Centers supported by the Federal Government as of June 30, 1969. The directory reports are arranged alphabetically by agency within the major subordinate echelons and include Federally Funded Research and Development Centers, except those funded by the Department of Health, Education, and Welfare (Office of Education). The other categories include Agriculture, Atomic Energy Commission, Justice, Commerce, Defense, Federal Communications Commission, Federal Trade Commission, Department of Interior, National Aeronautics and Space Administration, National Science Foundation, Post Office, Smithsonian Institution, Tennessee Valley Authority, Transportation, Treasury, and Veterans Administration. The information on each center is limited and covers address, number of personnel, funding, major functions and activities, major equipment, and publications. (PS)

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ED 068282

Directory of
FEDERAL R&D INSTALLATIONS

For the Year Ending June 30, 1969

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
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A Report to the Federal Council for Science and Technology

SE 014 530

National Science Foundation
NSF 70-23

ED 068282

Directory of FEDERAL R&D INSTALLATIONS

For the Year Ending June 30, 1969

A Report to the Federal Council for Science and Technology

National Science Foundation
NSF 70-23

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ERRATA

Directory of Federal R&D Installations
For the Year Ending June 30, 1969

On page 1028 under District of Columbia ADD Oceanographic Unit, Transporation (CG)

On pages 1035-1037 of the Index DELETE the entry 981 under the following fields and groups:

05-01
05-02
06-03
06-05
06-06
06-11
06-12
06-13
06-14

On page 1036 under Index Codes 05-08 and 06-03 ADD page 205 and under 06-05 ADD page 343

Letter of Transmittal

Washington, D.C.
June 17, 1970

Dear Dr. DuBridge:

I have the honor to transmit to you this *Directory of Federal R&D Installations*, as of June 30, 1969, as requested in your letter of March 14, 1969.

Sincerely yours,

W D McElroy

W. D. McElroy
Director
National Science Foundation

Honorable
Lee A. DuBridge, Chairman
Federal Council for Science and Technology

Foreword

This *Directory of Federal R&D Installations* is a comprehensive, general reference to research and development establishments owned and directly controlled by the Federal Government. It was compiled on an experimental basis by the National Science Foundation at the request of Dr. Lee A. DuBridge, Chairman, Federal Council for Science and Technology (FCST). The Committee on Federal Laboratories (of FCST) had recommended preparation of such a directory in response to need for current information on the identity, location, size, functions, and capabilities of the Federal laboratories. Seventeen Federal Government agencies, which account for more than 98 percent of fiscal year 1970 estimated Federal obligations for intramural research and development, submitted the completed survey reports in the directory.

This directory will be an important means of making more widely known the Federal installations capable of dealing with significant research and technological problems, and their expertise and major equipment resources. Ultimately, it should help increase interagency use of the Federal Government's R&D resources. Concurrently, the directory will help to provide the basis for more informed judgments as to the need for new laboratories and supporting establishments.

The survey planning and design was done with the help of a seven-man special advisory committee appointed by the Director of the Federal Committee on Laboratories. The committee members also served as their respective agencies' survey liaisons. Without their assistance and that of the liaison officers of the remaining 10 respondent agencies, this directory could not have been compiled. The names of these individuals and their agency affiliations are listed in the technical notes (appendix A). Not listed by name, but deserving appreciation, are the many staff employees who provided the respective agency liaisons with the material for preparing the individual installation reports.

Overall direction of the survey and preparation of the directory were the responsibility of Dr. Zola Bronson, Staff Associate for Science Management Studies, Office of Economic and Manpower Studies, National Science Foundation. Directory users are encouraged to forward their suggestions, questions, and comments on the directory to Dr. Bronson.

This directory was developed in the National Science Foundation's Office of Economic, Manpower, and Special Studies, Charles E. Falk, Head, under the general guidance of Thomas J. Mills, Head, Office of Economic and Manpower Studies.

W. D. McElroy
Director
National Science Foundation

June 1970

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Introduction

This directory is primarily a reference document. Hence, the survey emphasis was on developing a comprehensive list of federally owned and directly controlled R&D installations and those subsidiary organizations that provide direct technical service and support. Because the size of the directory was an important consideration, only a few data categories were selected for reporting and details were restricted. Where available, other published materials are listed describing the individual installations in greater detail.

The directory reports, arranged alphabetically by agency and within major subordinate echelons, reflect data as of June 30, 1969. Developments subsequent to this date affecting the status of individual installations are generally not reported. Directory users searching for an installation by name are cautioned to make certain that the latter represents the current official designation for the entire installation and not a constituent element.

The Federally Funded Research and Development Centers (FFRDC's), except those funded by the Department of Health, Education, and Welfare (Office of Education), are included because the sponsoring Federal agencies have direct access to the former's resources. Typically, the respective sponsoring agencies also approve proposed undertakings of major or significant R&D activities by their FFRDC's for other organizations. The survey enumeration explicitly exclude all security classified installations and all federally owned R&D installations whose continuing administration is the responsibility of academic institutions and industrial organizations, other than FFRDC's.

Equipment reporting guidelines received special attention during the planning phase of the survey. It was determined necessary to restrict reporting to special R&D instruments and equipment which: (1) may have been custom-made or developed onsite to meet exceptional needs, (2) are uncommon in that only a few are available in all of the Nation's R&D establishments, or (3) are not typical of the equipment usually found in the particular type of reporting installation.

Operating within the guideline of reporting all federally owned and directly controlled installations involved in R&D activities, a total of 486 separate reports was submitted and included in the directory. These reports identify and describe the activities of 723[1] R&D installations. However, the disparities between the respective installations in terms of physical size, dollar obligations, program responsibilities, etc. are so great that assigning value measures to the total, 723, would be controversial. Nevertheless, the composite of reports does provide a reasonably faithful, broad-brush profile of the Federal intramural R&D installation structure.

A review of the installations' reports clearly identifies a remarkable array of resources in the Federal R&D intramural system. This expertise and physical plant currently in use can undoubtedly contribute importantly to meeting the Nation's many emerging and continuing evolving new needs.

A concise index has been included in the directory to facilitate information retrieval. The ***COSATI Subject***

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[1] **Exclusive of 5 research vessel listings and 3 individual research vessel reports.**

Category List (DOD-Modified),[2] October 1965, was chosen as the key.

To facilitate development of the directory index, survey respondents were requested to enter the appropriate COSATI field and group codes for the substantive core of their respective installation programs and activities. Thoughtful use of the COSATI code list resulted in a reasonably good, first-cut classification and identification of program activities and capabilities. However, because some installations assigned a greater number of codes than did others of comparable size in similar fields, the frequency of references under the respective group codes does not yield a reliable profile of the R&D resources and expertise in the Federal intramural installations as a whole.

The accuracy of the COSATI coding, as well as the reporting of installations and their respective program missions and activities, were the responsibility of the reporting agencies. The NSF review and processing included only limited, special-purpose examinations of the agencies' reports.

The technical notes in appendix A contain additional information on methodology.

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[2] The *COSATI Subject Category List (DOD-Modified)*, October 1965, is a categorization of subjects by fields and groups. It is a product of the Committee on Scientific and Technical Information of the Federal Council for Science and Technology. A total of 22 broad subject fields and 188 groups are augmented with scope notes which describe the subject coverage of each group and give cross references to related groups. The *COSATI Subject Category List (DOD-Modified)* is distributed by the Clearinghouse for Federal Scientific and Technical Information, U.S. Department of Commerce.

Department of Agriculture

AGRICULTURAL ENGINEERING RESEARCH STATIONS
INSTALLATION

USDA - ARS
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. W. M. Carleton A. TECHNICAL DIRECTOR: Dr. W. M. Carleton

3. LOCATION: A. Beltsville (Nearest City) B. Prince Georges (County) C. Maryland (State)

4. P. O. ADDRESS: Plant Industry Station

A. Beltsville (City) B. Maryland (State) C. 20705 (Zip Code) D. 301-474-4800 ext. 521 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 84

B. ALL OTHER PERSONNEL (Total): 102

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 2,899,100

B. EXTRAMURAL (Total): $ - -

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The program of the Agricultural Engineering Research Division covers research on the following problem areas: (a) Soil tillage equipment, (b) Planting and fertilizing equipment; (c) Insect control equipment, (d) Weed control equipment. (e) Harvesting and farm processing, (f) Cotton ginning, (g) Livestock engineering, (h) Farm structures, (i) Farmstead water supplies; (j) Animal wastes, (k) Radiation procedures and equipment, (l) Environment modification and control through electrification, (m) Electric light-traps, etc.

For each of the research installations listed below is the mailing address, telephone number, principal activities (identified above), COSATI CODES, personnel and FY 1969 total dollar obligations.

(1) Tillage Machinery, P.O. Box 792, Auburn, Alabama 36830; 205-887-8597; activities: (a), (e); COSATI CODES: (02-03, 08-13); 9 professionals, 12 others; $272,200.

(2) Western Cotton Insects Research Laboratory, 2000 East Allen Road, Tucson, Arizona 85719; 602-327-4482; activities: (k),(g), (e); COSATI CODES: (02-03, 06-06); 4 professionals, 3 others; $124,600.

(3) Agricultural Research Station, P.O. Box 5098, Salinas, California 93905; 408-424-1457; activities: (e); COSATI CODES: (02-03); 3 professionals, 2 others; $93,800.

(4) Cotton Research Station, 10753 Shafter Avenue, Shafter, California 93263; 805-746-6391; activities: (e); COSATI CODES: (02-03); 2 professionals, 1 other; $88,600.

(5) Everglades Experiment Station, P.O. Box 758, Belle Glade, Florida 33430; 305-996-7268; activities: (e); COSATI CODES: (02-03); 2 professionals, 6 others; $113,200.

(6) Insect Attractants Laboratory, P.O. Box 14565, Gainesville, Florida 32601; 904-372-5368; activities: (k); COSATI CODES: (06-02); 1 professional, no others; $28,600.

4

(7) Southeastern Poultry Field Station, 934 College Station Road, Athens, Georgia 30601; 404-548-5661; activities: (b), (g), (h), (l); COSATI CODES: (02-03),(02-05), (06-02), (06-06), (06-19), (13-01); 1 professional, 1 other; $83,900

(8) Southeastern Fruit and Tree Nut Research Station, USDA-ARS-CR, Byron, Georgia 31008; 912-956-5656; activities: (c), (k); COSATI CODES: (02-03), (06-06); no professionals, 1 other; $13,400.

(9) Southern Grain Insects Research Laboratory, Georgia Coastal Plain Experiment Station, Tifton, Georgia 31794; 912-382-6904; activities: (c);COSATI CODES (02-03),(06-06); 2 professionals, 1 other; $50,000.

(10) Agricultural Engineering Research Laboratory, Tifton, Georgia 31794; 912-382-5561; activities: (e); COSATI CODES: (02-03); 5 professionals, 2 others; $127,700.

(11) Southern Piedmont Soil Conservation Research Center, P.O. Box 555, Watkinsville, Georgia 30677; 404-769-5631; activities: (h), (i); COSATI CODES: (02-03, 13-02); 1 professional, no others; $30,800.

(12) Agricultural Engineering Research Division, Beltsville, Maryland 20705; 301-474-6500 X-521; activities: (c), (d), (g), (h), (i), (j), (l), (m); COSATI CODES: (02-03, 02-04, 02-05, 05-05, 06-02, 06-04, 06-06, 06-19, 11-03, 11-04, 11-09, 11-12, 13-01, 13-02, 13-03, 13-12, 13-13, 14-02); 22 professionals, 18 others; $554,100.

(13) Field Laboratory for Tung Investigations, P.O. Box 287, Poplarville, Mississippi 39470; 601-795-8751; activities: (e); COSATI CODES: (02-03); 1 professional, 1 other; $31,000.

(14) South Central Poultry Research Laboratory, P.O. Box 5367, State College, Mississippi 39762; 601-323-1964; activities: (c), (e), (g), (h), (l); COSATI CODES: (02-03, 02-05, 06-02, 06-06, 06-19, 13-01); 2 professionals, 2 others; $82,700.

(15) Cotton Ginning Research Laboratory, Delta Branch Experiment Station, Stoneville, Mississippi 38776; 601-686-7281 X-271; activities: (d), (e); COSATI CODES: (02-03); 11 professionals, 19 others, $390,200.

(16) Cotton Ginning Laboratory, P.O. Box 578, Mesilla Park, New Mexico 88047; 505-247-0311; activities: (e); COSATI CODES: (02-03); 6 professionals, 15 others; $253,500.

(17) Tobacco Research Station, P.O. Box 1363, Oxford, North Carolina 27565; 919-693-5151; activities: (m); COSATI CODES: (02-03, 06-06); 1 professional, 2 others; $43,700.

(18) Agricultural Engineering Laboratory, 2330 Elm Street, P.O. Box 278, Forest Grove, Oregon 97116; 503-357-7163; activities: (c); COSATI CODES: (02-03); 3 professionals, 4 others; $58,300.

(19) Southeastern Cotton Ginning Research Laboratory, Clemson, South Carolina 29631; 803-654-2996; activities: (e), COSATI CODES: (02-03); 3 professionals, 5 others; $127,900.

(20) Livestock Insect Laboratory, Fredericksburg Road, P.O. Box 232, Kerrville, Texas 78028; 512-257-6515; activities: (c); COSATI CODES: (02-03, 06-20); 1 professional, 1 other; $29,100.

(21) South Plains Cotton Ginning Research Laboratory, Route 3, P.O. Box 213 AAA, Lubbock, Texas 79401; 806-762-1139; activities: (e); COSATI CODES: (02-03); 2 professionals, 2 others; $192,600.

(22) Entomology Research Laboratory, 3706 Nob Hill Road, Yakima, Washington 98901; 509-248-4810; activities: (c); COSATI CODES: (02-03, 06-06); 1 professional, 3 others; $68,800.

(23) Federal Experiment Station, P.O. Box 167, Kingshill, St. Croix, Virgin Islands 00850; 809-773-1312; activities; (m); COSATI CODES: (02-03, 06-06); 1 professional, 1 other; $40,400.

4a

8. MAJOR EQUIPMENT:

- Analytic digit system
- Anechoic chamber
- Amino acid analyzer
- Apparatus for testing structural building components
- Commercial and experimental gin machinery
- Controlled environment cabinets and related instrumentation
- Controlled environment poultry houses
- Dry tracer measurement instrumentation
- Electronic recorder
- Equipment for measuring egg shell strength with radioisotope techniques
- Equipment for monitoring and measuring water usage
- Equipment for pumping and disposing of masses of insects from light traps
- Fiber testing equipment
- Experimental light clearance spraying apparatus
- 400 channel gamma spectrometer
- Gas chamber
- Light-controlled laboratory
- Machine shop for construction of experimental field equipment
- Plant chamber and humidity control
- Spectrophotometer
- Spectroradiometer
- Steam analyzer
- Triaxial test apparatus with strain measuring instrumentation "V" chambers to evaluate insect response to light

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports of research activities and recent publications, contact:

Dr. W. M. Carleton, Director
Agricultural Engineering Research
Division, USDA-ARS
Plant Industry Station
Beltsville, Maryland 20705

10. DATE OF REPORT: March 1970

ANIMAL DISEASE AND PARASITE DIVISION — INSTALLATION

USDA-ARS — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: P. D. Delay
A. TECHNICAL DIRECTOR: P. D. Delay

3. LOCATION: A. Beltsville *(Nearest City)* B. Prince Georges *(County)* C. Maryland *(State)*

4. P. O. ADDRESS: Agricultural Research Center, Animal Disease and Parasite Division
A. Beltsville *(City)* B. Maryland *(State)* C. 20705 *(Zip Code)* D. 301-474-4800 Ext. 463 *(Telephone (Area Code & No.)*

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 45
B. ALL OTHER PERSONNEL (Total): 72

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 2,011,300
B. EXTRAMURAL (Total): $ 15,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research on host-parasite relationships in cattle, sheep, swine and poultry and the development of immunological mechanisms which will produce resistance to parasitism in livestock. (02-05, 06-13)

The development of techniques for rapidly detecting the presence of trichinosis and other parasitic nematodes in swine. (02-05, 06-03, 06-13)

Investigations of protozoan diseases of cattle, sheep, swine and poultry and to determine safe and effective chemical procedures for controlling these conditions in livestock. (02-01, 02-05, 06-03, 06-13)

Evaluations of antiparasites as systems for control of parasitic diseases of livestock and poultry. (02-05, 06-03, 06-13)

Research to develop efficient, practical treatment procedures for anaplasmosis, equine piroplasmosis, bovine venereal trichomoniasis, bovine lymphosarcoma and other economically injurious livestock and poultry diseases. (02-05, 06-06)

Maintenance of disease and parasite catalogues used in the diagnosis of disorders which affect human and animal health. (02-05, 06-13)

Identification and classification of parasites important to human and animal health. (06-13)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

6

8. MAJOR EQUIPMENT:

Electron microscopes.
Standard laboratory equipment.

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports and publications, contact:

Dr. P. D. Delay, Director
Animal Disease and Parasite
 Research Division, USDA-ARS
Agricultural Research Center
Beltsville, Maryland 20705

10. DATE OF REPORT: January 1970

ANIMAL DISEASE AND PARASITE RESEARCH STATIONS — INSTALLATION
USDA - ARS — AGENCY OR DEPT.

7

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Dr. P. D. DeLay
A. TECHNICAL DIRECTOR: Dr. P. D. DeLay

3. LOCATION: A. Beltsville (Nearest City) B. Prince Georges (County) C. Maryland (State)

4. P. O. ADDRESS: Agricultural Research Center
A. Beltsville (City) B. Maryland (State) C. 20705 (Zip Code) D. 301-474-4800 Ext. 463 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 39
B. ALL OTHER PERSONNEL (Total): 92

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,849,200
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The program of the Animal Disease and Parasite Division covers research on the following problem areas: (a) Parasites of sheep and cattle, (b) Pesticide effectiveness and disease control and eradication, (c) Biological effect of pesticides, poisonous plants, and chemical controls on animals, (d) Viruses of sheep, cattle, and goats, (e) Poultry disease and control, (f) Disease agents of fur animals, (g) Detoxicating mechanisms reducing residue of pesticides and toxic substances in human and animal foods.

For each of the research installations listed below is the mailing address, telephone number, principal activities (identified above), COSATI codes, personnel and F.Y. 1969 total dollar obligation.

(1) Regional Parasite Research Laboratory, P.O. Drawer 952, Auburn, Alabama, 36830; 205-887-3744; Activities: (a), (b); COSATI CODES: (06-03, 06-06); 3 professionals, 11 others; $175,000.

(2) Animal Disease Research Laboratory, Denver Federal Center, Bldg. 45, Denver, Colorado, 80202; 303-233-3611, Ext. 8674; Activities: (d); COSATI CODES: (02-05, 06-03); 4 professional, 16 others; $238,600.

(3) Southeastern Poultry Field Station, 934 College Station Road, Athens, Georgia, 30601; 404-548-5661; Activities: (e); COSATI CODES: (06-03, 06-06, 06-13); 4 professionals, 28 others; $346,900.

(4) Regional Poultry Research Laboratory, 3606 East Mt. Hope Road, East Lansing, Michigan, 48828; 517-372-1910; Activities: (b); COSATI CODES: (02-05, 06-03); 1 professionals, 1 others; $17,800.

(5) South Central Poultry Research Laboratory, P.O. Box 5367, State College, Mississippi, 39762; 601-323-1964; Activities: (c); COSATI CODES: (02-05, 06-03); 1 professional, 0 others; $45,300.

(6) Animal Disease and Parasite Laboratory, P.O. Box 705, Albuquerque, New Mexico, 87101; 505-877-2042; Activities: (a), (b); COSATI CODES: (02-05, 06-03); 6 professionals, 4 others; $166,000.

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

7. Major Functions and Activities (cont'd).

(7) Southwestern Veterinary Toxicological and Livestock Insects Research Laboratory, P.O. Drawer GE, College Station, Texas, 77840; 713-846-8821, Ext. 371; Activities: (c); COSATI CODES: (06-02, 06-06); 3 professionals, 2 others, $85,900.

(8) Livestock Insect Laboratory, Fredericksburg Road, P.O. Box 232, Kerrville, Texas, 78028; 512-257-6516; Activities: (c), (g); COSATI CODES: (02-05, 06-01, 06-03, 06-06, 06-20); 8 professionals, 19 others; $334,800.

(9) Poisonous Plant Research Laboratory, 1150 East 14th Street, North Logan, Utah, 84321; 801-752-2941; Activities: (c), (g); COSATI CODES: (06-06, 06-20); 6 professionals, 5 others; $217,200.

(10) Endoparasite Vector Pioneering Research Laboratory, Washington State University, Pullman, Washington, 99163; 509-335-5517; Activities: (f); COSATI CODES: (02-05, 06-03, 06-13); 4 professionals, 7 others; $221,700.

8. MAJOR EQUIPMENT:

Amino acid analyzer
Centrifuge
Controlled environment cabinet and rooms with related instrumentation
Electron microscope
Gas chromatograph
Multicomponent gas chromatographic equipment
Sample changer and scaler
Specialized temperature and humidity cabinetry for rearing and environmental studies
Steam sterilizer
Xray diffraction assembly
Animal holding and handling facilities
Cobalt irradiation source
Controlled environment poultry houses
Disease isolated poultry rearing pens
Gas analyzer
Infrared spectrophotometer
Pesticides spray testing and evaluation equipment
Specialized entomological and physiological apparatus
Spectrophotometer
Standard Laboratory equipment
Ultra centrifuge

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports and publications, contact:

Dr. P. D. DeLay, Director
Animal Disease and Parasite
Research Division, USDA-ARS
Agricultural Research Center
Beltsville, Maryland 20705

10. DATE OF REPORT: March 13, 1970

ANIMAL HUSBANDRY DIVISION
INSTALLATION

USDA-ARS
AGENCY OR DEPT.

9

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: R. E. Hodgson
A. TECHNICAL DIRECTOR: R. E. Hodgson

3. LOCATION: A. Beltsville (Nearest City) B. Prince Georges (County) C. Maryland (State)

4. P. O. ADDRESS: Agricultural Research Center, Animal Husbandry Division
A. Beltsville (City) B. Maryland (State) C. 20705 (Zip Code) D. 202-474-4800 Ext. 404 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 70
B. ALL OTHER PERSONNEL (Total): 157

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 4,339,500
B. EXTRAMURAL (Total): $ - -

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research on the problems related to the feeding and management of beef cattle. Investigations of genetic variations and their relations to physiological processes in dairy cattle. Studies of genetic characteristics and their relation to reproductive efficiency and reduced offspring loss. Studies on the energy balance of dairy cows. (02-05, 06-03)

Research to preserve and improve feeds, especially forages. Investigations of basic nutritional processes, such as rates of intake and digestion of rations, identification and analysis of metabolites arising from various feeds, occurrence and fate of natural toxins and pesticides. Application of genetic concepts to produce dairy herd improvement through increased milk production, enhanced anatomical and physiological characteristics, disease resistance and improved growth rates. (02-05, 06-03, 06-06)

Research on the nutritional requirements of poultry. Investigations on the physiological mechanisms which control or affect growth, viability, production and reproduction in poultry. Research on animal fiber development. The development of genetic procedures to produce new sheep breeds with high quality meats and wool. Research on crossbred swine to develop improved reproductive performance, growth rate and carcass merit in newly bred lines of swine. Genetic studies to increase and improve meat production; nutritional analyses to determine and evaluate feed requirements and their effects on swine. Investigations of reproductive factors as conditions to genetic improvement, reproduction and swine growth. (02-05, 06-03)

Pioneering research on blood antigens. Basic research on female sex hormones, their interaction with tissues and information on metabolic control in growth, reproduction and lactation. (02-05, 06-01, 06-03, 06-06)

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Wool carding machine.
Automatic cell fiber counter.
Wool combing machine.
Electronic fiber fineness tester.
Tensile strength tester.
Noise simulator.
Electron microscope.
Feed mill.
Amino acid analyzer.
Standard laboratory equipment.

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports and publications, contact:

Dr. R. E. Hodgson, Director
Animal Husbandry Research
Division, USDA-ARS
Agricultural Research Center
Beltsville, Maryland 20705

10. DATE OF REPORT: December 1969

Animal Husbandry Research Stations
INSTALLATION

USDA-ARS
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: R. E. Hodgson
A. TECHNICAL DIRECTOR: R. E. Hodgson

3. LOCATION: A. Beltsville (Nearest City) B. Prince Georges (County) C. Maryland (State)

4. P. O. ADDRESS: Agricultural Research Center

A. Beltsville (City) B. Maryland (State) C. 20705 (Zip Code) D. 301-474-4800 x404 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 38
B. ALL OTHER PERSONNEL (Total): 72

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 2,245,700
B. EXTRAMURAL (Total): $ - -

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Animal Husbandry Research Division conducts research at the following locations on these problem areas: (a) Environmental and management factors on the farm affecting animal product quality, (b) Physiological, genetic, reproduction, breeding and interaction systems of animals; (c) Developing and crossing inbred lines for certain traits, nutrient requirements and feed utilization, (d) Disease control.

The following farm animals are classified in conjunction with the above codes and are keyed accordingly: (1) poultry, (2) beef cattle, (3) sheep, (4) dairy cattle, and (5) swine. For each of the research installations listed below is the mailing address, telephone number, principal activities (identified above), COSATI CODES, personnel and F.Y. 1969 total dollar obligation.

(1) Poultry Research Laboratory, Georgetown, Delaware 19947; activities: (a-1, c-1); COSATI CODE: (06-03); 1 professional, 1 other; $40,200.

(2) Brooksville Beef Cattle Research Station; P.O. Box 246, Brooksville, Florida 33512; 904-796-3385; activities: (b-2); COSATI CODE: (06-03); 1 professional, 4 others; $61,000.

(3) Southeastern Poultry Field Station, 934 College Station Road, Athens, Georgia 30601; 404-548-5661; activities: (a-1); COSATI CODE: (02-05, 06-03); 2 professionals, 2 others; $94,400.

(4) Western Sheep Breeding Laboratory; Sheep Experiment Station, Dubois, Idaho 83423; 208-374-5172; activities: (a-3, c-3); COSATI CODE: (06-03); 5 professionals, 13 others; $308,700.

(5) Iberia Livestock Experiment Station, Jeanerette, Louisiana 70544; 318-276-5527; activities: (b-2, 4), (c-4); COSATI CODE: (06-03); 3 professionals, 6 others; $105,400.

(6) Regional Poultry Research Laboratory, 3606 East Mt. Hope Road, East Lansing, Michigan 48823; 517-372-1910; activities: (d-1); COSATI CODE: (02-05, 06-03); 11 professionals, 27 others; $688,400.

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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12 Animal Husbandry Research Station - Cont'd.

(7) South Central Poultry Research Laboratory, P.O. Box 5367, State College, Mississippi 39762; 601-323-1964; activities: (a-3); COSATI CODE: (02-05, 06-03); 2 professionals, 7 others; $139,400.

(8) Range Livestock Experiment Station, P. O. Box 790, Miles City, Montana 59031; 406-232-4467; activities: (b-2); COSATI CODE: (06-03); 4 professionals, 3 others; $110,400.

(9) Meat Animal Research Center, P. O. Box 166, Clay Center, Nebraska 68933; 402-463-9841; activities: (b-2, 3, 5); (c-2, 3, 5) COSATI CODE: (02-05); 3 professionals, 4 others; $534,000.

(10) Fort Robinson Beef Cattle Research Station, Ft. Robinson, Nebraska 69339; 402-665-2400, activities: (b-2);COSATI CODE: (06-03); 1 professional, 3 others; $40,800.

(11) Fort Reno Livestock Research Station, Route 3, Fort Reno, Oklahoma 73036, 405-262-5291; activities: (b-c); COSATI CODE: (02-05);2 professionals, no other; $45,000.

(12) Dairy Cattle Experiment Station, Lewisburg, Tennessee 37091; 901-359-3949 activities: (b-4); COSATI CODE: (06-03); 2 professionals, no others; $32,800.

(13) Beef Cattle Research Station, Front Royal, Virginia 22630; 703-635-5018; activities: (b-2); COSATI CODE: (06-03); 1 professional, 2 others; $45,200.

8. MAJOR EQUIPMENT:

Amino acid analyzer
Centrifuge
Controlled environment cabinets with related instrumentation
Controlled environment poultry houses
Doffin feed mill
Electron microscope
Gas analyzer
Sample changer and scaler
Ultra centrifuge
X ray diffraction assembly

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports of research activities and recent publications, contact:

Dr. R. E. Hodgson, Director
Animal Husbandry Reseearch
Division, USDA-ARS
Agricultural Research Center
Beltsville, Maryland 20705

10. DATE OF REPORT: March 20, 1970

Boll Weevil Research Laboratory
INSTALLATION

USDA-ARS
AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: T. B. Davich A. TECHNICAL DIRECTOR: T. B. Davich

3. LOCATION: A. State College (Nearest City) B. Oktibbeha (County) C. Mississippi (State)

4. P. O. ADDRESS: Boll Weevil Research Laboratory - P.O. Box 5367

A. State College (City) B. Mississippi (State) C. 39762 (Zip Code) D. 601-323-2230 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 32
B. ALL OTHER PERSONNEL (Total): 34

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,001,900
B. EXTRAMURAL (Total): $ - -

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

(Item 1) Studies on ecology and physiology of the boll weevil; chemical control including insecticides, attractants and growth regulating substances; evaluation of plant varieties for resistance to insect attack; biological control including beneficial insect pathogens and genetics; and cultural and mechanical control. (06-06)

Biochemical research or boll weevil problem, including investigation of boll weevil pheromones and hormones and constituents of the cotton plant attractive to boll weevils. (06-06)

Develop improved methods for control of major corn insects including insect vectors of corn stunt diseases. (06-06)

(Item 2) Genetics and breeding of cotton resistant to the boll weevil; physiological characteristics of cotton beneficial to eradication or control of the boll weevil. (06-06)

(Item 3) Develop and test improved insecticide application equipment with emphasis on uniform droplet spray devices. Develop and test physical methods of controlling the cotton boll weevil. (02-03)

(Item 4) Microclimatology studies including energy conversion and water use efficiency, nitrogen fertilizer problems; reclaiming eroded soils. (02-01)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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8. MAJOR EQUIPMENT:

Gas chromatographs
1 acre field cages
Varian A60 NMR spectrometer
Beckmann 5A infrared spectrometer
Nester-faust autoannular spinning band distillation apparatus
Growth chambers
Liquid scintillation counter
Standard laboratory equipment

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports and publications, contact the following persons as to item no.:

(Item 1) Dr. E. F. Knipling, Director
Entomology Research Division, USDA-ARS
Plant Industry Station
Beltsville, Maryland 20705

(Item 2) Dr. H. Rex Thomas, Director
Crops Research Division, USDA-ARS
Plant Industry Station
Beltsville, Maryland 20705

(Item 3) Dr. W. M. Carleton, Director
Agricultural Engineering
Research Division, USDA-ARS
Plant Industry Station
Beltsville, Maryland 20705

(Item 4) Dr. C. H. Wadleigh, Director
Soil and Water Conservation
Research Division, USDA-ARS
Plant Industry Station
Beltsville, Maryland 20705

10. DATE OF REPORT: March 1970

Consumer and Food Economics Research Laboratory
INSTALLATION

USDA-ARS
AGENCY OR DEPT.

15

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION LEASED
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Dr. Faith Clark
A. TECHNICAL DIRECTOR: Dr. Faith Clark

3. LOCATION: A. Hyattsville (Nearest City) B. Prince Georges (County) C. Maryland (State)

4. P. O. ADDRESS: Federal Center Building, Consumer and Food Economics Research Laboratory
A. Hyattsville (City) B. Maryland (State) C. 20782 (Zip Code) D. 301-388-8451 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 44
B. ALL OTHER PERSONNEL (Total): 20

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 814,100
B. EXTRAMURAL (Total): $ 495,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research on family management and consumer food consumption patterns and their relationship to the National dietary situation. The studies include: Analyses of levels of living; home management practices of families regarding kinds, amounts and costs of food consumed by various segments of the population; food habits of individuals; and practices of families in purchases and household use of various foods. Work is conducted on developing tables on the nutritive values of foods; appraising the nutritional quality of diets and food supplies for domestic and foreign distribution; determining the kinds, amounts and costs of goods and services used for family living by rural households; studying family practices in the management of financial and other resources; and evaluating economic studies of clothing and textile use by families. (02-02, 05-03, 05-10, 06-01, 06-16)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Mathatrons.
Standard laboratory equipment.

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports and publications, contact:

Dr. Faith Clark, Director
Consumers and Food Economics
Research Division, USDA-ARS
Federal Center Building
Hyattsville, Maryland 20782

10. DATE OF REPORT: January 1970

CROPS RESEARCH DIVISION
INSTALLATION

USDA-ARS
AGENCY OR DEPT.

17

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: H. Rex Thomas
   A. TECHNICAL DIRECTOR: H. Rex Thomas

3. LOCATION: A. Beltsville (Nearest City) B. Prince Georges (County) C. Maryland (State)

4. P. O. ADDRESS: Plant Industry Station, Crops Research Division
   A. Beltsville (City) B. Maryland (State) C. 20705 (Zip Code) D. 202-474-6500 Ext. 367 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 163
   B. ALL OTHER PERSONNEL (Total): 188

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): \$ 6,058,000
   B. EXTRAMURAL (Total): \$ 969,300

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Chemical regulation of tobacco growth and development; control of protein level and amino acid balance of cotton; chemical control of weeds. (02-01)

Adaptation of introduced peanut varieties; regional variety tests of peanuts; evaluation of woody ornamentals for hardiness and pest resistance. (02-04)

Biochemical research on cotton fiber deterioration; nature of verticillium wilt resistance in cotton; alkaloid production in potatoes; mechanism of tobacco cell growth and development; and biosynthetic pathways of chemical constituents of tobacco as they relate to health. (06-01)

Breeding for improved quality and disease resistance in ornamentals, tobacco, mushrooms, vegetables, pome and stone fruits and berry crops, forage grasses and legumes; cotton germ plasm preservation and development; World Seed Collection of all plants for basic morphology and genetic studies; effect of growth regulators and chemicals on ornamentals and basic studies on plant hormones and regulators; National economic botanical survey system; physiology of cold tolerance in cotton; photosynthetic efficiency of forage crops; and genetics of soybeans. (06-03)

Fate and persistence of pesticides in soils; epidemiology of plant diseases; long-range weather and environmental effects of plant diseases; effects of air pollutants on tobacco, ornamentals and vegetables; and other plant life. (06-06)

Research on diseases of safflower, sunflower, guar, and mushrooms; disease resistance of cereal rusts and leaf diseases; taxonomy, biology, and physiology of nematodes; identifying and characterizing viruses of fruit; leaf pathogens of tobacco; and fungi and other metabolites of cotton and vegetables. (06-13)

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
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8. MAJOR EQUIPMENT:

- Gas chromatographs.
- Infrared carbon dioxide analyzers.
- Strip scanner for radioactive counting.
- Refrigerated ultra centrifuges.
- Refrigerated preparatory centrifuges.
- Fraction collectors.
- Spectrophotometers.
- Freeze dryers.
- Growth chambers.
- Electrophoresis apparatus.
- Mass spectrometer.
- Electron microscopes.
- Ultra centrifuges
- Amino acid analyzers.
- Carbondioxide analyzers.
- Sugarcane quarantine facility.
- Standard laboratory equipment.

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports and publications contact:

Dr. H. Rex Thomas, Director
Crops Research Division, USDA-ARS
Plant Industry Station
Beltsville, Maryland 20705

10. DATE OF REPORT: December 1969

CROPS RESEARCH STATIONS
INSTALLATION

USDA - ARS
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. H. Rex Thomas   A. TECHNICAL DIRECTOR: Dr. H. Rex Thomas

3. LOCATION: A. Beltsville (Nearest City)   B. Prince Georges (County)   C. Maryland (State)

4. P. O. ADDRESS: Plant Industry Station

A. Beltsville (City)   B. Maryland (State)   C. 20705 (Zip Code)   D. 301-474-4800 x367 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 217

B. ALL OTHER PERSONNEL (Total): 416

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 8,318,400

B. EXTRAMURAL (Total): $ - -

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Crops Research Division conducts research at the following locations on these problem areas: (a) Breeding, disease, quality, genetics, physiology, and pesticide residues, (b) Weed control, (c) Nematodes, (d) Plant disease reporting and mycology, (e) Distribution of foundation seed stock.

The following crop commodities are classified in conjunction with the above codes and are keyed accordingly: (1) cereal crops, (2) forage, (3) pasture and range, (4) oilseeds, (5) fruits, (6) tree nuts, (7) vegetables, (8) new plants, (9) vegetable seeds, (10) cotton, (11) tobacco, (12) ornamentals, (13) farm windbreaks, (14) tung nuts, (15) sugar crops.
For each of the research installations listed below is the mailing address, telephone number, principal activities (identified above), COSATI CODES, personnel and F.Y. 1969 total dollar obligation.

(1) Brush Control Research Laboratory, Forest and Range Experiment Station, Flagstaff, Arizona 86003; 602-774-5261 x1467; activities: (a-3), (b); COSATI CODES: (02-04, 06-06); 3 professionals 2 others; $65,000.

(2) Western Cotton Insects Research Laboratory, 2000 East Allen Road, Tucson, Arizona 85719; 602-327-4482; activities: (a-1, 2, 4, 5, 8),(b), (e); COSATI CODES: (02-04, 06-01, 06-06); 6 professionals, 1 other; $94,400.

(3) Pacific Forest and Range Experiment Station, P.O. Box 245, Berkeley, California 94701; 415-841-5121 x303; activities: (a-3); COSATI CODES: (02-04); 1 professional, 1 other; $23,200.

(4) Southwestern Irrigation Field Station, P.O. Box 1339, Brawley, California 92227; 714-344-4184; activities: (a-4, 5,7,10, 15); COSATI CODES: (02-04, 06-01, 06-03, 06-06); 2 professionals, 5 others; $108,100.

(5) Plant Introduction Station, P.O. Box 1040, Chico, California 95927; 916-343-0408; activities: (a-8); COSATI CODES: (02-04); 2 professionals, 10 others; $117,200.

7. Major Functions and Activities (cont'd)

(6) Horticultural Field Station, 2021 South Peach Avenue, Fresno, California 93726; 209-251-8890; activities: (a-5, 6); COSATI CODES: (06-03); 3 professionals, 4 others; $101,300.

(7) Date and Citrus Station, 40-455 Clinton Street, Indio, California 92201; 714-Diamond 7-3414; activities: (a-5); COSATI CODES: (06-03, 06-06); 3 professionals, 8 others; $160,300.

(8) Horticultural Field Station, P.O. Box 150, La Jolla, California 92037; 714-293-5000; activities: (a-7); COSATI CODES: (02-04); 2 professionals, 4 others; $90,600.

(9) Agricultural Research Station, P.O. Box 5098, Salinas, California 93905 408-424-1457; activities: (a-5, 7, 15), (c); COSATI CODES: (02-04, 06-01, 06-03, 06-13); 10 professionals, 16 others; $318,000.

(10) Cotton Research Station, 10753 Shafter Avenue, Shafter, California 93263; 805-746-6391; activities: (a-10), (c), (e); COSATI CODES: (02-04, 06-03, 06-06); 13 professionals, 3 others; $311,700.

(11) Aquatic Weeds Research Laboratory, Denver Federal Center Building 56, Denver, Colorado 80202; 303-233-3611; activities: (b); COSATI CODES: (06-06); 2 professionals 3 others; $54,200.

(12) National Seed Storage Laboratory, Ft. Collins, Colorado 80521; 303-297-0111; activities: (a-8, 9); COSATI CODES: (02-04, 06-01); 4 professionals 8 others; $171,200.

(13) Crops Research Laboratory, Ft. Collins, Colorado 80521; 303-484-8777; activities: (a-2, 3, 15), (b); COSATI CODES: (02-04, 06-01, 06-03, 06-06, 06-13); 5 professionals, 4 others; $393,700.

(14) National Arboretum, 28th and M Streets, N.E., Washington, D.C., 20250; 202-967-1221; activities: (a-12); COSATI CODES: (02-04); 14 professionals, 75 others; $854,800.

(15) Sugarcane Field Station, P.O. Box 156 Canal Point, Florida 33438; 305-924-5548; activities: (a-15); COSATI CODES: (02-04, 06-03, 06-13); 7 professionals, 7 others; $232,400.

(16) Plant Introduction Station, 13601 Old Cutler Road, Miami, Florida 33158; 305-235-2533; activities: (a-8); COSATI CODES: (02-04); 3 professionals, 10 others; $118,200.

(17) Big Bend Horticultural Laboratory, Monticello, Florida 32344; 904-997-2597; activities: (a-14), COSATI CODES: (06-03); 1 professional, no other; $24,600.

(18) Horticultural Field Laboratory, 2120 Camden Road, Orlando, Florida 32803; 304-241-6791; activities: (a-5), (c); COSATI CODES: (02-04, 06-03, 06-06); 12 professionals, 26 others; $586,200.

(19) Southeastern Fruit and Tree Nut Research Station, USDA-ARS-CR, Byron, Georgia 31008; 912-956-5656; activities: (a-5, 6), (c); COSATI CODES: (02-04, 06-03, 06-06); 5 professionals, 16 others; $292,200.

(20) Plant Introduction Station, Route 4, Box 433, Savannah, Georgia 31405; 912-232-1056; activities: (a-8), (b), COSATI CODES: (02-04, 06-06); 2 professionals, 5 others; $56,900.

(21) Southern Grain Insects Research Laboratory, Georgia Coastal Plain Experiment Station, Tifton, Georgia, 31794; 912-382-6904; activities: (a-1, 2, 3,4,7,10,11,12), (b), (c); COSATI CODES: (02-03, 06-03, 06-06); 1 professional 1 other; $56,000.

(22) Small Fruit Research Station, Carbondale, Illinois 62903; 618-453-2496; activities: (a-5); COSATI CODES: (02-04, 06-03, 06-06); 3 professionals, 2 others; $75,400.

7. Major Functions and Activities (cont'd)

(23) Sugarcane Field Station, P.O. Box 470, Houma, Louisiana 70306; 504-872-6326; activities: (a-15), (b); COSATI CODES: (02-04, 06-03, 06-06, 06-13) 15 professionals, 24 others; $398,300.

(24) Pecan Field Laboratory, Route 1, Box 223, Shreveport, Louisiana 71105; 318-865-8034; activities: (a-6); COSATI CODES: (06-03, 06-06); 2 professionals, 4 others; $76,600.

(25) Plant Introduction Station, P.O. Box 88, Glenn Dale Maryland 20769; 202-262-2162; activities: (a-8); COSATI CODES: (02-04); 3 professionals, 16 others; $177,600.

(26) Sugar Crops Field Station, Route 6, Box 65, Meridian, Mississippi 39301; 601-482-0611; activities: (a-15); COSATI CODES: (02-04, 06-03, 06-06, 06-13); 4 professionals, 6 others; $129,000.

(27) Field Laboratory for Tung Investigations, P.O. Box 287, Poplarville, Mississippi 39470; 601-795-8751; activities: (a-14); COSATI CODES: (02-04, 06-03); 2 professionals, 5 others; $149,800.

(28) Jornada Experiment Range, P.O. Box 698, Las Cruces, New Mexico 88001; 505-646-1709 x565; activities: (a-3, 10); COSATI CODES: (02-04); 1 professional, 3 others; $58,700.

(29) Tobacco Research Station, P.O. Box 1363, Oxford, North Carolina 27565; 919-693-5151; activities: (a-11); COSATI CODES: (02-04, 06-01, 06-03, 06-13); 5 professionals, 14 others; $249,900.

(30) Border Belt Tobacco Research Station, Whiteville, North Carolina 28472; 919-648-4337; activities: (b); COSATI CODES: (02-04, 06-06); 2 professionals, 1 other; $40,300.

(31) Northern Great Plains Research Center, P.O.Box 459, Mandan, North Dakota 58554; 701-663-6448; activities: (a-2, 3, 13); COSATI CODES: (02-04, 06-03, 06-06); 3 professionals, 3 others, $120,600.

(32) Shade Tree and Ornamental Plant Laboratory, P.O. Box 365, Delaware, Ohio 43015; 614-363-1129; activities: (a-12); COSATI CODES: (06-06); 3 professionals, 6 others; $180,800.

(33) Southern Great Plains Field Station, Woodward, Oklahoma 73801; 405-256-7447; activities: (a-2, 3), (b); COSATI CODES: (02-04, 06-06); 3 professionals, 11 others; $147,700.

(34) Squaw Butte-Harney Experiment Station, P.O. Box 833, Burns, Oregon 97720; 503-573-2064; activities: (a-3); COSATI CODES: (02-04); 3 professionals, no others; $54,400.

(35) Regional Pasture Research Laboratory, University Park, Pennsylvania 16802; 814-237-7683; activities: (a-1,2,3), (d); COSATI CODES: (02-01, 02-04, 06-13); 7 professionals, 6 others; $172,900.

(36) Vegetable Breeding Laboratory, P.O. Box 3348, St. Andrews Branch, Charleston, South Carolina 29407; 803-556-0840; activities: (a-7), (c); COSATI CODES: (02-04, 06-06); 10 professionals, 15 others; $312,900.

(37) Northern Grain Insects Research Laboratory, USDA-ARS-CR, Brookings, South Dakota 57006; 605-693-3244; activities: (a-1, 4); COSATI CODES: (06-03); 4 professionals, 3 others; $133,000.

(38) Cotton Field Station, Box 1071, Knoxville, Tennessee 37901; 615-974-7105; activities: (a-1, 10, 11), COSATI CODES: (06-03); 3 professionals, 7 others; $98,100.

(39) Pecan Field Station, Box 589, Brownwood, Texas 76801; 214-646-9402; activities: (a-6); COSATI CODE: (02-04, 06-03); 1 professional, 3 others; $66,300.

(40) Crops Research Laboratory, State Agricultural Experiment Station, College Station, Texas 77843; 713-846-8821 x311; activities: (a-1, 2,4), (b); COSATI CODES: (02-04, 06-03); 1 professional, 4 others; $69,100.

7. Major Functions and Activities (cont'd)

(41) Citrus, Vegetable, Soil and Water Laboratory, P.O. Box 267, Weslaco, Texas 78596; 512-968-4511; activities: (a-5, 7), (b), (c); COSATI CODES: (02-04, 06-03, 06-06); 6 professionals, 8 others; $217,000.

(42) Crops Research Laboratory, Logan, Utah 84321; 801-752-4100; activities: (a-1, 2, 3, 4, 5, 15), (b), (c), (e); COSATI CODES: (02-04, 06-03, 06-06, 06-13); 15 professionals, 11 others; $377,400.

(43) Tree Fruit Research Center, 1100 North Western Avenue, Wenatchee, Washington 98801; 509-663-8181; activities: (a-5); COSATI CODES: (02-04, 06-03, 06-06); 6 professionals, 5 others; $140,800.

(44) Barley and Malt Laboratory, 501 North Walnut Street, Madison, Wisconsin 53705; 608-262-3355; activities: (a-1, 2, 5, 7, 11); COSATI CODES: (02-01); 4 professionals, 6 others; $148,000.

(45) Cheyenne Horticultural Field Station, P.O. Box 1087, Cheyenne, Wyoming 82001; 307-634-5920; activities: (a-5, 7); COSATI CODES: (02-04, 06-03, 06-06); 3 professionals, 8 others; $111,700.

(46) Federal Experiment Station, USDA-ARS-CR, Mayaguez, Puerto Rico 00708; 809-832-2435; activities: (a-1, 4); COSATI CODES: (02-04, 06-03, 06-13); 7 professionals, 36 others; $381,900.

8. MAJOR EQUIPMENT:

Automatic data system
Digital Fibro graphs
Gas chromatographs
Laboratory scale malting and brewing equipment
Male sterility induction room
Milcronaire stelometer
Radiation equipment
Spectrometer
Water measurement structures
Controlled environment rooms
Electron microscope
Instron strength tester
Machine shop for construction of experimental farm field equipment
Photothermal induction rooms
Refrigerated centrifuges
Ultra-violet and infrared spectrophotometer

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports of research activities and recent publications, contact:

Dr. H. Rex Thomas
Crops Research Division
USDA-ARS
Plant Industry Station
Beltsville, Maryland 20705

Eastern Utilization Research Laboratory
INSTALLATION

USDA-ARS
AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
  (1) ☒ GOVERNMENT-OPERATED
  (2) ☐ FFRDC
  (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
  (1) ☐ GOVERNMENT-OPERATED
  (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Ivan Wolff

A. TECHNICAL DIRECTOR: Dr. Ivan Wolff

3. LOCATION: A. Wyndmoor (Nearest City) B. Philadelphia (County) C. Pennsylvania (State)

4. P. O. ADDRESS: Eastern Utilization Research Laboratory, 600 E. Mermaid Lane

A. Philadelphia (City) B. Penna. (State) C. 19118 (Zip Code) D. 215-247-5800 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 175

B. ALL OTHER PERSONNEL (Total): 115

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 4,883,400

B. EXTRAMURAL (Total): $ 704,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research on improved food products and processes for dairy products, Eastern fruits and vegetables, maple products and animal fats including expanded industrial uses of these products. Fundamental and applied research to develop a more versatile and more economical leather. (02-01, 06-01, 06-08, 06-20, 11-07, 20-02)

Research on the chemical composition of tobacco and tobacco smoke directed toward the production of safer cigarettes. Dairy research dealing with the isolation, purification and interactions of milk proteins as they relate to processed milk products. Concentrated studies on the composition and structure of meat as related to the quality and flavor of meat and meat products. Techniques of single crystal and polymer crystallography and spectroscopy are used in the research projects listed. (02-01, 06-01, 06-08, 06-20, 11-07, 20-02)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Chemical engineering pilot plant.
Wide range of chemical and physical equipment.
Standard laboratory equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Brochure: "Eastern Utilization Research and Development Division, ARS, USDA."
"Laboratories and Functions of the Eastern Utilization Research and Development Division, ARS, USDA."

For up-to-date reports and publications, contact:

Dr. Ivan Wolff, Director
USDA-ARS-EURDD
600 E. Mermaid Lane
Philadelphia, Pennsylvania 19118

10. DATE OF REPORT: December 1969

Eastern Utilization Research Stations
INSTALLATION

USDA-ARS
AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Dr. Ivan Wolff
   A. TECHNICAL DIRECTOR: Dr. Ivan Wolff

3. LOCATION: A. Wyndmoor (Nearest City) B. Philadelphia (County) C. Pennsylvania (State)

4. P. O. ADDRESS: 600 E. Mermaid Lane
   A. Philadelphia (City) B. Penna. (State) C. 19118 (Zip Code) D. 215-247-5800 Ext. 242 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 59
   B. ALL OTHER PERSONNEL (Total): 38

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 1,344,900
   B. EXTRAMURAL (Total): $ - -

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Eastern Utilization Research Division conducts research at the following locations on (a) improved products and processing methods for milk and milk products; (b) control of possible toxins and allergens of milk and milk products; (c) improved processing of meat and meat products; (d) microbiology of meat with emphasis on the relation of the microflora to oxidative rancidity; (e) determine the processing potential of new varieties of potatoes through laboratory and pilot plant investigations and on the effect of varieties and cultural practices on the quality of commercial forms of processed potatoes.

For each of the research installations listed below is the mailing address, telephone number, principal activities (identified above), COSATI codes, personnel and F.Y. 1969 total dollar obligation.

(1) Dairy Products Research and Development Laboratory, USDA, South Bldg., Washington, D. C., 20250; 202-388-2364; activities: (a), (b); COSATI CODE: (06-08, 06-20); 43 professionals, 25 others; $856,400.

(2) Meat and Cheese Products Research and Development Laboratory, Agricultural Research Center, Beltsville, Maryland, 20705; 301-474-4800, Ext. 394; activities: (a), (c), (d); COSATI CODE: (02-01, 06-01, 06-08); 14 professionals, 10 others; $394,600.

(3) Red River Valley Potato Research Center, P.O. Box 113, East Grand Forks, Minnesota, 56721; 218-773-2473; activities: (e); COSATI CODE: (02-01, 06-01); 2 professionals, 3 others; $93,900.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Cheese-making pilot plant
Integrated pilot plant for potato processing
Laboratory equipment for heat treatment and removal of off-flavor in fluid milk processing
Milk processing equipment
Pilot plant for concentrated and dehydrated milk products

9. COMMENT AND PUBLICATION REFERENCES:

Brochure: "Laboratories and Functions of the Eastern Utilization Research and Development Division, ARS, USDA."

For up-to-date reports and publications, contact:

Dr. Ivan Wolff, Director
USDA-ARS-EURDD
600 E. Mermaid Lane
Philadelphia, Penna. 19118

10. DATE OF REPORT: March 19, 1970

ENTOMOLOGY RESEARCH DIVISION
INSTALLATION

USDA-ARS
AGENCY OR DEPT.

25

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: E. F. Knipling
   A. TECHNICAL DIRECTOR: E. F. Knipling

3. LOCATION: A. Beltsville (Nearest City) B. Prince Georges (County) C. Maryland (State)

4. P. O. ADDRESS: Plant Industry Station, Entomology Research Division
   A. Beltsville (City) B. Maryland (State) C. 20705 (Zip Code) D. 301-474-4800 Ext. 377 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 62
   B. ALL OTHER PERSONNEL (Total): 51

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 2,088,100
   B. EXTRAMURAL (Total): $ 441,500

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Investigations to develop improved methods of control for insect and mite pests of ornamental plants in greenhouses and nurseries. Research on the ecology, biology and control of insect and mite pests that attack or transmit diseases to Northeastern vegetable crops. (06-06)

Studies on the biology, ecology and control of the alfalfa weevil. (06-06)

Research on diseases of honey bees and other insect pollinators. (06-06)

Evaluate physical and mechanical methods of controlling pests of livestock. Investigations of arthropod vectors of bovine anaplasmosis and equine piroplasmosis to develop suppression or control procedures or reduce the ability of the vectors to transmit these diseases. (06-06)

Sorting and assigning insect specimens from various sources for identification. The development of safe, economical and effective synthetic organic agents and formulations for insect control and for use as insect chemosterilants. Analytical investigations of new insect pesticides and their residues in crops, animals and animal products and soils. Evaluations of effective economical aerosols of insect control agents of use to agriculture and the armed forces. Biological evaluation of new insect control chemicals and formulations. (06-06)

Develop procedures for destroying insects in or on aircraft arriving from foreign countries. Basic research on the physiological and biochemical processes of insects; insect hormones and their effect on insect development; and insect pathology, virology and bacteriology. (06-06)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Electron microscope.
Ultra thin microtome.
Gas liquid chromatography.
Ultra centrifuge.
Electrophoresis - paper and disc.
Freeze dryer.
Mass spectrometer.
Nuclear magnetic resonance spectrometer.
Apiaries - apiarium.
Sterilizers (heat and gas).
Microscopes.
Incubators.
Refrigeration apparatus.
Greenhouses.
Specially constructed tick rearing facilities.
Large animal isolation facilities.
Insect pathology equipment.
Insect rearing facilities.
Insect attraction chambers.
Spectrometers.
Emission spectrometer.
Infrared spectrophotometers.
Ultra violet spectrophotometer.
Spectro photo fluorometer.
Radiation detector and scaler.
Xray diffraction apparatus.
Growth chambers.
Cobalt 60 irradiator.

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports and publications, contact:

Dr. E. F. Knipling, Director
Entomology Research Division, USDA-ARS
Plant Industry Station
Beltsville. Maryland 20705

10. DATE OF REPORT: January 1970

Entomology Research Stations
INSTALLATION

USDA-ARS
AGENCY OR DEPT.

27

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. E. F. Knipling A. TECHNICAL DIRECTOR: Dr. E. F. Knipling

3. LOCATION: A. Beltsville (Nearest City) B. Prince Georges (County) C. Maryland (State)

4. P. O. ADDRESS: Plant Industry Station

A. Beltsville (City) B. Maryland (State) C. 20705 (Zip Code) D. 474-6500 Ext. 377 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 251
B. ALL OTHER PERSONNEL (Total): 361

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 8,502,300
B. EXTRAMURAL (Total): $ - -

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The program of the Entomology Research Division covers research on the following problem areas: (a) insect population dynamics, density counts, and mass rearing; (b) biological, chemical and natural control of insect pests, and disease vectors; (c) beneficial insects and pollinators; (d) insect-resistant crop varieties; (e) biology, ecology, life history studies and insect taxonomy; (f) effects of insecticides and pesticides, their residues and toxicity on man, animals and insects; (g) insecticide application research--aerial and ground application techniques; (h) quarantine treatments.

Insects and insect pests are classified in conjunction with the above codes and are keyed as follows: (1) fruit and nut insect pests; (2) cotton pests; (3) forage crops insects; (4) cereal grain insects; (5) man and/or livestock insect pests; (6) tobacco pests; (7) vegetable and berry insects; (8) sugarcane and sugarbeet pests; (9) grasshopper and/or mormon cricket, and (10) Japanese beetle, European chafer, and related species.

For each of the research installations listed below is the mailing address, telephone number, principal activities and commodities (identified above), COSATI CODES, personnel, and F.Y. 1969 total dollar obligations.

(1) Entomology Research Laboratory, P. O. Box 858, Mesa, Arizona, 85202; 602-261-4368; Activities: (b - 7,8,9),(d - 3), (e - 3,7,9); COSATI CODES: (06-06); 6 professionals, 6 others; $140,900. (Mesa Farm)

(2) Western Cotton Insects Research Laboratory, 2000 East Allen Road, Tucson, Arizona, 85719; 602-327-4482, Activities: (a), (b - 2), (c), (d - 3), (e-2,3); COSATI CODES: (06-06); 8 professionals, 7 others; $395,000.

(3) Dried Fruit and Nut Research Laboratory, 5578 Air Terminal Drive, Fresno, California, 93727; 209-291-6671; Activities: (b - 5), (e - 5); COSATI CODES: (06-06); 5 professionals, 4 others; $161,200.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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7. (continued)

(4) Entomology Research Laboratory, University of California, P. O. Box 112, Riverside, California, 92502; 714-787-5724; Activities: (a - 9), (b - 1,7), (e - 1, 7,9), (h - 1); COSATI CODES: (06-06); 14 professionals, 9 others; $331,500.

(5) Animal Disease Research Laboratory, Denver Federal Center Building 45, Denver, Colorado, 80202; 303-233-3611, Ext. 8674; Activities: (b - 5); COSATI CODES: (06-03, 06-06); 2 professionals, 3 others; $72,500.

(6) Systematic Entomology Laboratory, Room W-615, c/o U. S. National Museum, Washington, D. C., 20560; 202-388-6370; Activities: (a), (e); COSATI CODES: (06-06); 28 professionals, 10 others; $594,800.

(7) Sugarcane Field Station, P. O. Box 156, Canal Point, Florida, 33438; 305-924-5548; Activities: (b - 8); COSATI CODES: (06-06); 1 professional, 1 other; $25,900.

(8) Insects Attractants Laboratory, P. O. Box 14565, Gainesville, Florida, 32601; 904-372-5368; Activities: (b); COSATI CODES: (06-06); 1 professional, 1 other; $171,000.

(9) Insects Affecting Man Research Laboratory, P. O. Box 1268, Gainesville, Florida, 32601; 904-372-5368; Activities: (b - 5), (e - 5); COSATI CODES: (06-06); 21 professionals, 32 others; $611,600.

(10) Plant Introduction Station, 13601 Old Cutler Road, Miami, Florida, 33158; 305-235-2533; Activities: (b - 1), (e - 1); COSATI CODES: (06-06); 4 professionals, 0 others; $82,300.

(11) Horticultural Field Laboratory, 2120 Camden Road, Orlando, Florida, 32803; 305-241-6791; Activities: (b - 1), (e - 1); COSATI CODES: (06-06); 3 professionals, 7 others; $131,500.

(12) Tobacco Insects Laboratory, 107 West Washington Street, P. O. Box 549, Quincy, Florida, 32351; 904-627-6618; Activities: (a - 6), (b - 6), (e - 6), (f - 6); COSATI CODES: (06-06); 2 professionals, 6 others; $73,900.

(13) Southeastern Fruit and Tree Nut Research Station, USDA-ARS-CR, Byron, Georgia; 31008; 912-956-5656; Activities: (a - 1), (b - 1), (e - 1); COSATI CODES: (06-06); 6 professionals, 7 others; $150,700.

(14) Southern Grain Insects Research Laboratory, Georgia Coastal Plain Experiment Station, Tifton, Georgia, 31794; 912-382-6904; Activities: (b - 4), (e - 4,7), (f); COSATI CODES: (06-06); 13 professionals, 25 others; $452,100.

(15) Entomology Research Laboratory, P. O. Box 67, Twin Falls, Idaho, 83301; 208-733-4364; Activities: (a - 7,8), (b - 7,8), (d - 8), (e - 7,8), (h - 7); COSATI CODES: (06-06); 2 professionals, 5 others; $65,600.

(16) Entomology Field Laboratory, 1118 Chestnut Street, Vincennes, Indiana, 47591; 812-882-4942; Activities: (b - 1), (e - 1), (f - 1); COSATI CODES: (06-06); 3 professionals, 8 others; $190,400.

(17) Bee Stock Center, Rural Route 3, Box 82-B, Baton Rouge, Louisiana, 70808; 504-766-6064; Activities: (c), (e); COSATI CODES: (06-06); 8 professionals, 7 others; $217,700.

(18) Cotton Insects Research Laboratory, 4115 Gourier Avenue, Baton Rouge, Louisiana, 70808; 504-348-2783; Activities: (b - 2); COSATI CODES: (06-06); 3 professionals, 5 others; $126,000.

(19) Sugarcane Field Station, P. O. Box 470, Houma, Louisiana, 70360; 504-872-6326; Activities: (b - 8), (d - 8); COSATI CODES: (06-06); 3 professionals, 3 others; $79,700.

(20) Pecan Field Laboratory, Route 1, Box 223, Shreveport, Louisiana, 71105; 318-865-8034; Activities: (b - 1); COSATI CODES: (06-06); 1 professional, 2 others; $23,500.

(21) Boll Weevil Research Laboratory, P. O. Box 830, Tallulah, Louisiana, 71282; 318-49; Activities: (a - 2), (b - 2), (e - 2); COSATI CODES: (06-06); 2 professionals, 2 others; $29,000.

7. (continued)

(22) Southern Regional PPC Headquarters, P. O. Box 989, Gulfport, Mississippi, 39501; 601-863-1972; Activities: (b - 10), (e - 10); COSATI CODES: (06-06); 3 professionals, 4 others; $90,700.

(23) Biological Control of Insects Laboratory, P. O. Box A, Columbia, Missouri, 65201; 314-442-3194; Activities: (a), (b); COSATI CODES: (06-06); 8 professionals, 18 others; $434,300.

(24) Forage Insects Laboratory, University of Nebraska, East Campus, Lincoln, Nebraska, 68503; 402-447-8711; Activities: (b - 3), (d - 3), (e - 3); COSATI CODES: (06-06); 3 professionals, 2 others; $65, 400.

(25) Entomology Research Laboratory, P. O. Box 150, Moorestown, New Jersey, 08057; 609-235-0854; Activities: (a - 10), (b - 10), (e - 10), (h - 10); COSATI CODES: (06-06); 8 professionals, 14 others; $332,600.

(26) Tobacco Research Station, P. O. Box 1363, Oxford, North Carolina, 27565; 919-693-5151; Activities: (b - 6), (e - 6); COSATI CODES: (06-06); 3 professionals, 8 others; $129,200.

(27) Agricultural Engineering Laboratory, 2330 Elm Street, P. O. Box 278, Forest Grove, Oregon, 97116; 503-357-7163; Activities: (g - 7); COSATI CODES: (06-06); 1 professional, 0 other; $19,200.

(28) Regional Pasture Research Laboratory, University Park, Pennsylvania, 16802; 814-237-7683; Activities: (b - 3); COSATI CODES: (06-06); 1 professional, 0 others; $27,100.

(29) Vegetable Breeding Laboratory, P. O. Box 3348, St. Andrews Branch, Charleston, South Carolina, 29407; 803-556-0840; Activities: (b - 7), (d - 7), (e - 7); COSATI CODES: (06-06); 5 professionals, 9 others; $199,600.

(30) Southeastern Cotton Insects Laboratory, P. O. Box 271, Florence, South Carolina, 29501; 803-669-6664; Activities: (b - 2), (e - 2); COSATI CODES: (06-06); 5 professonals, 7 others; $175,800.

(31) Northern Grain Insects Research Laboratory, USDA-ARS-CR, Brookings, South Dakota, 57006; 605-693-3244; Activities: (b - 4), (e - 4); COSATI CODES: (06-06); 11 professionals, 19 others; $382,200.

(32) Entomology Research Laboratory, Old Fort Brown, P. O. Box 1033, Brownsville, Texas, 78520; 512-542-2516; Activities: (a - 2), (b - 2), (d - 2), (e - 2); COSATI CODES: (06-06); 15 professonals, 34 others; $744,100.

(33) Southwest Cotton Insects Laboratory, Drawer DR, College Station, Texas, 77840; 713-846-7714 ext. 351; Activities: (b - 2), (e - 2), (f); COSATI CODES: (06-06); 8 professionals, 7 others; $234,100.

(34) Southwestern Veterinary Toxicological and Livestock Insects Research Laboratory, P. O. Drawer GE, College Station, Texas, 77840; 713-846-8821, ext. 371; Activities: (b - 5), (e - 5); COSATI CODES: (06-06); 1 professional, no others; $32,600.

(35) Livestock Insect Laboratory, Fredericksburg Road, P. O. Box 232, Kerrville, Texas, 78028; 512-257-6515; Activities: (b - 5), (e - 5), (f - 5); COSATI CODES: (06-06); 14 professionals, 24 others; $439,000.

(36) Screwworm Research Laboratory, P. O. Box 986, Mission, Texas, 78572; 512-585-2783; Activities: (a - 5), (b - 5); (e - 5); COSATI CODES: (06-06);6 professionals, 11 others; $217,500.

(37) Southwest Cotton Insects Investigations Laboratory, P. O. Box 1218, Waco, Texas, 76703; 292-756-6511, Activities: (a - 2), (b - 2), (e - 2); COSATI CODES: (06-06); 1 professional, 4 others; $30,200.

(38) Citrus, Vegetable, Soil and Water Laboratory, P. O. Box 267, Weslaco, Texas, 78596; 512-968-4511; Activities: (b - 1), (e - 1); COSATI CODES: (06-06); 1 professional; 6 others; $45,700.

(39) Entomology Research Laboratory, 3706 Nob Hill Road, Yakima, Washington, 98901; 509-248-4810; Activities: (a - 7, 8), (b - 1, 7, 8),(e - 1, 7, 8), (f - 1, 7); COSATI CODES: (06-06); 17 professionals, 22 others; $518,400.

28b 7. (continued)

(40) Federal Experiment Station, P. O. Box 167, Kingshill, St. Croix, Virgin Islands, 00850; 809-773-1312; Activities: (b - 6), (e - 6); COSATI CODES: (06-06); 1 professional, 14 others; $95,100.

(41) European Parasite Laboratory, l'abbaye, rue Juliette Addm, 91 gif-sur-Yvette, France; 928-50-35; Activities: (b), (e); COSATI CODES: (06-06); 2 professionals, 7 others; $110,800.

(42) Entomology Research Laboratory, Rome, Italy, c/o American Embassy, USDA-ARS, APO, New York, N. Y. 09794; 506-842; Activities: (b), (c); COSATI CODES: (06-06); 1 professional, 1 other; $46,900.

(43) Federal Experiment Station, USDA-ARS-CR, Mayaguez, Puerto Rico, 00708; 809-832-2435; Activities: (a - 8), (b - 8); COSATI CODES: (06-06); 1 professional, 0 others; $5,000.

8. Major Equipment:

- Apiaries
- Autoclave
- Automatic data processer
- Bioclimatic cabinets
- Centrifuge
- Cessium 137 irradiation unit
- Chromatographic apparatus
- Cobalt 60 irradiator
- Cobalt 60 irradiation source
- Controlled environment cabinets for insect rearing
- Electron microscope
- Gas chromatographic equipment
- Infrared spectrophotometer
- Liquid chromatograph
- Lyophilizer
- Oscilloscope
- Pesticides spray testing and evaluation equipment
- Photographic equipment
- Plant growth chambers
- Scintillator
- Specialized attractant evaluation tunnels
- Specialized sound equipment
- Spectrometer
- Spectrophotometer
- Warburg apparatus
- Water measurement equipment
- Microtome

9. Comment and Publication References:

For up-to-date reports of research activities and recent publications, contact:

Dr. E. F. Knipling, Director
Entomology Research Division, USDA-ARS
Plant Industry Station
Beltsville, Maryland 20705

10. DATE OF REPORT: March 20, 1970

Fruit and Vegetable Chemistry Laboratory
INSTALLATION

USDA-ARS
AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: E. A. Beavens
   A. TECHNICAL DIRECTOR: E. A. Beavens

3. LOCATION: A. Pasadena (Nearest City) B. Los Angeles (County) C. California (State)

4. P. O. ADDRESS: Fruit and Vegetable Chemistry Laboratory, 263 South Chester Avenue
   A. Pasadena (City) B. Calif. (State) C. 91106 (Zip Code) D. 213-796-0239 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 13
   B. ALL OTHER PERSONNEL (Total): 7

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 378,100
   B. EXTRAMURAL (Total): $ - -

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts research on chemical composition and physical properties of tree nuts and subtropical fruits and compositional changes caused by processing operations in order to develop new products and methods of preservation. (06-01)

Conducts research on chemical, biochemical and physical-chemical nature of flavonoid- and terpenoid-like constituents of citrus fruits and their products; on chemical changes involved in quality losses while in storage; and on development of new processes to prevent such chemical changes. (06-01)

Conducts research on isolation, identification, and characterization of flavor and related constituents of citrus oils, juices, and other subtropical fruit products; and on new products and methods of processing to overcome undesirable changes in present products. (06-01)

   A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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30 8. MAJOR EQUIPMENT:

Standard chemical and biochemical laboratory equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Brochure: "Laboratories and Functions of the Western Utilization Research and Development Division, ARS, USDA."

For up-to-date reports and publications, contact:

A. I. Morgan, Director
USDA-ARS-WURDD
800 Buchanan Street
Albany, California 94710

10. DATE OF REPORT: December 1969

HUMAN NUTRITION DIVISION
INSTALLATION

USDA-ARS
AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: W. A. Gortner
A. TECHNICAL DIRECTOR: W. A. Gortner

3. LOCATION: A. Beltsville (Nearest City) B. Prince Georges (County) C. Maryland (State)

4. P. O. ADDRESS: Agricultural Research Center, Human Nutrition Division
A. Beltsville (City) B. Maryland (State) C. 20705 (Zip Code) D. 301-474-4800 Ext. 337 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 65
B. ALL OTHER PERSONNEL (Total): 63

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,990,000
B. EXTRAMURAL (Total): $ 260,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research to establish criteria for desirable diet patterns by studying human nutritional needs for carbohydrates, fats, proteins, vitamins, trace elements and minerals and to determine the physiological function and utilization of these nutrients. Studies of the characteristics, properties and biological availability of nutrients as they occur in foods or change prior to consumption and to evaluate the response to these nutrients in the diets of selected population groups. (06-01, 06-03, 06-06, 06-08, 06-16, 07-03, 07-04)

Laboratory investigations to improve diets for use by families, institutions and USDA Food Assistance programs, such as the School Lunch and Needy Family Programs. (06-08)

Research on the physiological effects of consuming foods having insecticide, herbicide and pesticide residues. (06-01, 06-06)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Mass spectrometer.
Nuclear magnetic resonance spectrometer.
Electron microscope.
Analytical model ultracentrifuge.
Standard laboratory equipment.

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports and publications, contact:

Dr. Willis A. Gortner, Director
Human Nutrition Research Division
USDA-ARS
Agricultural Research Center
Beltsville, Maryland 20705

10. DATE OF REPORT: January 1970

MARKET QUALITY RESEARCH DIVISION
INSTALLATION

USDA-ARS
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Harold T. Cook
A. TECHNICAL DIRECTOR: Harold T. Cook

3. LOCATION: A. Beltsville (Nearest City) B. Prince Georges (County) C. Maryland (State)

4. P. O. ADDRESS: Federal Center Building, Market Quality Research Division
A. Hyattsville (City) B. Maryland (State) C. 20782 (Zip Code) D. 301-388-8695 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 53
B. ALL OTHER PERSONNEL (Total): 36

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,367,700
B. EXTRAMURAL (Total): $ 327,700

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research evaluations on marketability as related to color measurement and the appearance of agricultural products. Investigations to develop improved storage methods for apples and stone fruits; control post-harvest decay and rot of stone fruits; and find objective measurements of maturity and quality of apples, citrus fruits, "mature green" tomatoes and lettuce. Evaluations of the effects of pre-harvest environment on post-harvest quality of apples, pears and stone fruits. (02-03, 06-03, 06-08)

Research to determine procedures for assuring quality and wholesomeness in "further processed" poultry products. Studies to develop methods for detecting and controlling salmonella in poultry, eggs and dairy products prior to marketing. Evaluations of techniques for improved packaging, shipping and storage of fresh poultry products. (02-03, 06-03, 06-08, 13-04)

Developing methods for estimating seed vigor and viability; identifying environmental factors which affect seed germination; measuring the level of protein content, fungal contamination and metabolite presence in grain and grain sorghum; and to determine the effects of commercial storage practices on molds and aflatoxins in cottonseed. (02-03, 06-03, 06-08)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

34 8. MAJOR EQUIPMENT:

Standard laboratory equipment.

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports and publications, contact:

Dr. Harold T. Cook, Director
Market Quality Research Division
USDA-ARS, Federal Center Building
Hyattsville, Maryland 20782

10. DATE OF REPORT: January 1970

Market Quality Research Stations
INSTALLATION

USDA-ARS
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Harold T. Cook
A. TECHNICAL DIRECTOR: Dr. Harold T. Cook

3. LOCATION: A. Hyattsville (Nearest City) B. Prince George's (County) C. Maryland (State)

4. P. O. ADDRESS: Market Quality Research Division, USDA-ARS, Federal Center Building
A. Hyattsville (City) B. Maryland (State) C. 20782 (Zip Code) D. 202-388-8695 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 56
B. ALL OTHER PERSONNEL (Total): 63

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,641,400
B. EXTRAMURAL (Total): $ - -

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Market Quality Research Division conducts research at the following locations on these problem areas: (a) Protecting and maintaining the market quality of agricultural products; (b) Controlling stored product insects in agricultural commodities; (c) Improving the quality of agricultural products in export markets.

The following commodities are classified in conjunction with the above codes and are keyed accordingly: (1) fruits, (2) nuts, (3) vegetables, (4) horticultural crops, (5) peanuts, (6) corn, (7) grains, (8) rice, (9) oilseeds, (10) tobacco, (11) potatoes. For each of the research installations listed below is the mailing address, telephone number, principal activities (identified above), COSATI CODES, personnel and F.Y. 1969 total dollar obligation.

(1) Horticultural Field Station, 2021 South Peach Avenue, Fresno, California, 93726; 209-251-8890; Activities: (a-1, 3, 4); COSATI CODES: (06-03, 06-08); 7 professionals, 2 others; $142,200.

(2) Dried Fruit Nut Laboratory, 5578 Air Terminal Drive, Fresno, California 93727; 209-291-6671; Activities: (b-1,2); COSATI CODE: (06-06, 06-13); 8 professionals, 8 others; $224,000.

(3) Market Quality Research Laboratory, P.O. Box 700, Pomona, California, 91769; 714-622-5061; Activities: (a-1); COSATI CODES: (06-03, 06-08); 4 professionals, 4 others; $92,800.

(4) Insect Attractants Laboratory, P.O. Box 14565, Gainsville, Florida 32601; 904-372-5368; Activities: (b); COSATI CODES: (06-02); none professionals, none others; $66,300.

(5) Plant Introduction Station, 13601 Old Cutler Road, Miami, Florida 33158; 305-235-2533; Activities: (a-1, 4); COSATI CODE: (06-03, 06-08); none professionals, 2 others; $18,300.

(6) Horticultural Field Laboratory, 2120 Camden Road, Orlando, Florida, 32803; 305-241-6791; Activities: (a-1, 3); COSATI CODES: (06-03, 06-08); 6 professionals, 7 others: $175,700.

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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7. (continued)

(7) Peanut Marketing Research Laboratory, P. O. Box 110, Dawson, Georgia, 31742; 912-526-0111; Activities: (a-5); COSATI CODES: (06-01, 06-08); 4 professionals, 7 others; $123,500.

(8) Market Quality Research Laboratory, Tifton, Georgia, 31794; 912-382-6530; Activities: (b-5, 6); COSATI CODES: (06-06); 2 professionals, 5 others; $84,000.

(9) Midwest Market Pathology Laboratory, 536 S. Clark Street, Chicago, Illinois, 60605; 312-353-6678; Activities: (a-1, 3); COSATI CODES: (06-03); 4 professionals, 1 other; $71,100. (Formerly Market Pathology Laboratory)

(10) Stored Products Insect Research Station, Manhattan, Kansas, 66502; 913-776-6821; Activities: (b-7); COSATI CODES: (06-06); 7 professionals, 8 others; $188,400.

(11) Red River Valley Potato Research Center, P. O. Box 113, East Grand Forks, Minnesota, 56721; Activities: (a-11); COSATI CODES: (06-08); 1 professional, 2 others; $29,000.

(12) Eastern Market Pathology Laboratory, Belle Mead, New Jersey, 08502; 201-359-8248; Activities: (a-4); COSATI CODES: (06-03); 3 professionals, 4 others; $80,900. (Formerly Market Pathology Laboratory)

(13) Rice-Pasture Research Experiment Station, Room 303, Beaumont, Texas, 77706; 713-752-5221; Activities: (b-8); COSATI CODES: (06-03); 1 professional, 2 others; $43,300.

(14) Southwestern Field Crops Pathological Laboratory, Room 303, College Station,Texas, 77843; 713-846-8821 x364; Activities: (a-7, 8, 9); COSATI CODES: (06-03); 2 professionals, 2 others: $49,600.

(15) Citrus, Vegetable, Soil and Water Laboratory, P. O. Box 267, Weslaco, Texas, 78596: 512-968-4511; Activities: (a-1, 3); COSATI CODES: (06-08); 1 professional, 1 other; $34,300.

(16) Stored Products Insects Laboratory, P. O. Box 10125, Richmond, Virginia, 23240; 703-649-3611; Activities: (b-10); COSATI CODES: (06-06); 2 professionals, 4 others; $70,700.

(17) Northwestern Market Quality Laboratory, P. O. Annex Building, Room 111, Wenatchee, Washington, 98801; 509-663-8317; Activities: (a-1); COSATI CODES: (06-03); 3 professionals, 2 others; $70,700.

(18) Market Quality Laboratory, USDA-European Research Unit-Marconistroat, 38, Rotterdam, Netherlands; Activities: (c); COSATI CODES: (02-02, 06-08, 13-04); 1 professional, 2 others; $76,600.

8. Major Equipment:

Automatic Data Processer
Controlled temperature and humidity rooms
Elaborate photogenic equipment
Electron microscopes
Growth chambers
Low temperature drying chambers
Pilot and scale peanut shelling plant
Potato storage equipment
Variable air, temperature and speed belt dryers

9. Comment and Publication References:

For up-to-date reports of research activities and recent publications, contact:

Dr. Harold T. Cook, Director
Market Quality Research Division
USDA-ARS, Federal Center Building
Hyattsville, Maryland 20782

10. DATE OF REPORT: March 20, 1970

Metabolism and Radiation Research Laboratory
INSTALLATION

USDA-ARS
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: R. C. Bushland
   A. TECHNICAL DIRECTOR: R. C. Bushland

3. LOCATION: A. Fargo (Nearest City) B. Cass (County) C. North Dakota (State)

4. P. O. ADDRESS: Metabolism and Radiation Research Laboratory
   A. Fargo (City) B. North Dakota (State) C. 58102 (Zip Code) D. 701-237-5771 X4210 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 62
   B. ALL OTHER PERSONNEL (Total): 26

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 1,769,100
   B. EXTRAMURAL (Total): $ - -

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

(Item 1) Research on the fate and physiological effects of insecticides, chemosterilants and other compounds on insects. Investigations of the life processes unique to insects and the development of ways to interrupt these processes in manners which are non-hazardous to high animals. Studies of the physiological and biochemical processes specific to insect reproduction, growth and development from egg to adult and means to interrupt these processes through procedures which are non-hazardous to higher animals. The development of basic and applied information on insect radiobiology which will permit expansion of sterile-male insect control techniques to include a variety of insect species. Research to determine information on the effects of chemical mutogens and chemosterilants on insect reproduction and heredity, leading to methods of insect control through the use of chemosterilants. To study the genetics of selected economically important insects so as to develop a broader approval for insect control based upon genetic manipulation. (06-06)

(Item 2) Research to determine the metabolic fate and biochemical interactions of pesticides and pesticide additives in plants and to develop methods for pesticides extraction. (06-01, 06-06)

(Item 3) Research on the chemical metabolism of herbicides and insecticides in cattle, sheep, goats, swine and poultry. Also studies on the metabolic fate and physiology associated with absorption, accumulation, depletion and excretion of these unnatural chemical compounds. (06-06)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

(Item 1) Electron microscope
Cobalt 60 radiation unit
300 Kv X-ray
40 Kv X-ray
Mass spectrometer
Nuclear magnetic resonance spectrometer
Environmental control cabinets
Thermo luminescent dosimetry system
Zeiss spectrophotometer
Gas chromatographs
Ultra evaporator
Lyophilizers
Liquid scintillation counter
Time lapse movie microscope equipment
Amino acid analyzer
Strip scanner-thin layer chromatograph
Biolazer
Lazer optical bench
Ultra centrifuge

(Item 2) Atomic absorption spectrometer
Radiological counting equipment
Gas chromatograph
Standard laboratory equipment

(Item 3) Amino acid analyzer
Gas chromatograph
Lab monitor
Scanner parkard
Liquid scintillating spectrometer
Amino spectrophotometer
Spectrophotometer
Atomic scintillating counting system
Standard laboratory equipment

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports and publications, contact the following persons, according to item no. in Section 7:

(Item 1) Dr. E. F. Knipling, Director
Entomology Research Division
USDA-ARS
Plant Industry Station
Beltsville, Maryland 20705

(Item 2) Dr. H. Rex Thomas
Crops Research Division, USDA-ARS
Plant Industry Station
Beltsville, Maryland 20705

(Item 3) Dr. R. E. Hodgson, Director
Animal Husbandry Research Division
USDA-ARS
Agricultural Research Center
Beltsville, Maryland 20705

10. DATE OF REPORT: December 1969

National Animal Disease Laboratory
INSTALLATION

USDA-ARS
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: C. A. Manthei
A. TECHNICAL DIRECTOR: C. A. Manthei

3. LOCATION: A. Ames (Nearest City) B. Story (County) C. Iowa (State)

4. P. O. ADDRESS: National Animal Disease Laboratory, P. O. Box 70
A. Ames (City) B. Iowa (State) C. 50010 (Zip Code) D. 515-232-0250 Ext. 201 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 77
B. ALL OTHER PERSONNEL (Total): 280

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 3,917,100
B. EXTRAMURAL (Total): $ - -

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research to expand knowledge on the causes, diagnosis, characteristics, treatment and prevention of economically injurious domestic diseases affecting livestock and poultry, including some which are transmissible to man. Some of the diseases under study are tuberculosis; epizootic bovine abortion; leptospirosis; brucellosis; bovine lymphosarcoma; paratuberculosis; infectious keratitis (pink eye); mastitis; swine erysipelas, abscesses, and atrophic rhinitis; transmissible gastroenteritis; ornithosis, infectious bronchitis, and Newcastle disease of poultry; equine infectious anemia (swamp fever) and other important diseases. The work involves laboratory analyses and evaluations of domestic diseases, maternal and fetal responses to infections, microbiological studies of digestive disturbances, investigations of glandular functions in diseased animals, studies of physiological data received from telemetric systems implanted in animals, food intake of animals under healthy and diseased conditions, the influence of hormones on animal metabolism and bacteriological investigations of diseases and disease agents isolated from their host animals. Investigations examine susceptibility and resistance in animals, electron microscopy of viruses and antibodies, transmission of diseases and the manner of transmission, pathologic reactions to viruses and vaccines, the role of physical, chemical and biological aerosols in domestic disease conditions, evaluation of external factors contributing to diseases in animals and other related studies. (02-05, 06-01, 06-03, 06-06, 06-13)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
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8. MAJOR EQUIPMENT:

Electron microscopes.
Micro-biological equipment.
Standard laboratory equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Brochure: "National Animal Disease Laboratory" (Miscellaneous Publication No. 871)

For up-to-date reports and publications, contact:

Dr. P. D. Delay, Director
Animal Disease and Parasite
Research Division, USDA-ARS
Agricultural Research Center
Beltsville, Maryland 20705

10. DATE OF REPORT: January 1970

NORTHERN UTILIZATION RESEARCH LABORATORY — INSTALLATION

USDA-ARS — AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: R. J. Dimler A. TECHNICAL DIRECTOR: R. J. Dimler

3. LOCATION: A. Peoria (Nearest City) B. Peoria (County) C. Illinois (State)

4. P. O. ADDRESS: Northern Utilization Research Laboratory, 1815 North University St.

A. Peoria (City) B. Illinois (State) C. 61604 (Zip Code) D. 309-685-4011 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 230

B. ALL OTHER PERSONNEL (Total): 167

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 6,368,600

B. EXTRAMURAL (Total): $ 325,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts research on industrial and food uses of corn, wheat, grain sorghum, soybeans, flaxseed and on possible new commercial crops in this country. (02-01, 06-08)

Research on compounds of potential toxicity to humans. (06-20, 07-03)

Development of improved coating materials from farm crops utilizing single crystal and polymer crystallography and spectroscopy procedures. (11-03, 20-02).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Chemical engineering pilot plant facility.
Standard laboratory equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Brochure: "Northern Utilization Research and Development Division, ARS, USDA."

For up-to-date reports and publications, contact:

Dr. R. J. Dimler, Director
USDA-ARS-NURDD
1815 North University St.
Peoria, Illinois 61604

10. DATE OF REPORT: December 1969

Plum Island Animal Disease Laboratory
INSTALLATION

USDA-ARS
AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: J. J. Callis
A. TECHNICAL DIRECTOR: J. J. Callis

3. LOCATION: A. Plum Island (Nearest City) B. Suffolk (County) C. New York (State)

4. P. O. ADDRESS: Plum Island Animal Disease Laboratory, P. O. Box 848

A. Plum Island (City) B. New York (State) C. 11944 (Zip Code) D. 516-323-2500 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 36
B. ALL OTHER PERSONNEL (Total): 339

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 4,327,300
B. EXTRAMURAL (Total): $ - -

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research to expand knowledge on the causes, diagnosis, characteristics, treatment and prevention of economically injurious exotic animal diseases foreign to the United States. Included in the extensive research activities are such diseases as duck plague, African horsesickness, foot-and-mouth disease, African swine fever, mycoplasma and other diseases not presently found in the United States. The work involves laboratory analyses and evaluations of all of the aspects of exotic diseases, susceptibility and resistance in animals, electron microscopy of viruses, strain characterization, inactivated virus vaccines, factors in carriers influencing transmission, methods of disease transmission, pathologic reactions to viruses and vaccines, molecular biology of viruses and antibodies, role of endoparasites in relation to disease transmission, antigen production with immunological effectiveness and other related types of investigations. (02-05)

The installation remains in a state of constant preparedness to render necessary laboratory diagnostic assistance in the event of outbreaks of any exotic foreign animal diseases in the United States. (02-05)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Electron microscopes.
Ultra centrifuge.
Standard laboratory equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Brochure: "Plum Island Disease Laboratory" (Miscellaneous Publication No. 931)

For up-to-date reports and publications, contact:

Dr. P. D. Delay, Director
Animal Disease and Parasite
Research Division, USDA-ARS
Agricultural Research Center
Beltsville, Maryland 20705

10. DATE OF REPORT: January 1970

SOIL & WATER CONSERVATION RESEARCH DIVISION
INSTALLATION

USDA-ARS
AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: C. H. Wadleigh
A. TECHNICAL DIRECTOR: C. H. Wadleigh

3. LOCATION: A. Beltsville (Nearest City) B. Prince Georges (County) C. Maryland (State)

4. P. O. ADDRESS: Plant Industry Station, Soil and Water Conservation Research Division
A. Beltsville (City) B. Maryland (State) C. 20705 (Zip Code) D. 301-474-4800 Ext. 571 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 43
B. ALL OTHER PERSONNEL (Total): 22

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,074,600
B. EXTRAMURAL (Total): $ - -

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Basic research on how the physiochemical characteristics of soils affect the availability of mineral nutrients to plant roots and the effect of these mineral nutrients on plant growth processes. Research to reduce watershed hydrology problems to their basic components and to derive computational techniques and procedures which will have national applicability. The research analyses can produce prediction equations and working tools which will be useful to the Soil Conservation Service and other action agencies engaged in watershed protection programs. (02-01, 06-06, 07-05)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Monochrometer.
Gravity chamber.
Mass spectrometer.
Chromatography apparatus.
Spectrometer.
Data recording system.
Standard laboratory equipment.

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports and publications, contact:

Dr. C. H. Wadleigh, Director
Soil and Water Conservation
Research Division, USDA-ARS
Plant Industry Station
Beltsville, Maryland 20705

10. DATE OF REPORT: December 1969

Soil and Water Conservation Research Stations
INSTALLATION

USDA-ARS
AGENCY OR DEPT.

47

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Dr. C. H. Wadleigh
A. TECHNICAL DIRECTOR: Dr. C. H. Wadleigh

3. LOCATION: A. Beltsville (Nearest City) B. Prince Georges (County) C. Maryland (State)

4. P. O. ADDRESS: Plant Industry Station
A. Beltsville (City) B. Maryland (State) C. 20705 (Zip Code) D. 301-474-6500 Ext. 571 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 259
B. ALL OTHER PERSONNEL (Total): 447

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 10,338,500
B. EXTRAMURAL (Total): $ - -

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The program at this Station covers research on the following problem areas: (a) Improved methods of conservation farming and ranching, (b) Soil conservation and management studies, (c) Irrigation studies, (d) Water conservation, watershed management, and hydrology studies, (e) water retention, reuse, and reservoirs, (f) Farm chemicals and farm organic waste pollutants, (g) Erosion control, (h) Flood control, water drainage and run-off, (i) Soil chemistry, including salinity studies, and mineral deposits, (j) Remote sensing research.

For each of the research installations listed below is the mailing address, telephone number, principal activities (identified above), COSATI CODES, personnel and F.Y. 1969 total dollar obligation.

(1) Water Conservation Laboratory, 4331 East Broadway, Phoenix, Arizona, 85040; 602-261-4356; Activities: (c), (d); COSATI CODES: (02-03, 02-04, 13-02, 20-04); 16 professionals, 26 others; $686,300.

(2) Southwest Rangeland Watershed Research Center, 442 East Seventh Street, Tucson, Arizona, 85717; 602-792-6381; Activities: (d); COSATI CODES: (02-03, 08-08); 9 professionals, 19 others; $429,200.

(3) Southwestern Irrigation Field Station, P. O. Box 1339; Brawley, California, 92227; 714-344-4184; Activities: (h), (i); COSATI CODES: (02-03); 7 professionals, 17 others, $328,500.

(4) Fresno Field Station, 4816 E. Shields Avenue, Fresno, California, 93726; 209-255-6781; Activities: (d), (e); COSATI CODES: (02-03, 08-07, 08-08); 5 professionals, 3 others; $52,200.

(5) Lompoc Soil and Water Conservation Field Station, 7th and Chesnut Streets, Lompoc, California, 93436; 805-736-8010; Activities: (d); COSATI CODES: (02-03, 08-07, 08-08); 3 professionals, 3 others; $56,600.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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7. Major Functions and Activities - Cont'd.

(6) Salinity Laboratory, 4500 Glenwood Drive, P.O. Box 672, Riverside, California, 92502; 714-683-0170; Activities: (a), (b), (i); COSATI CODES: (02-01, 02-04); 21 professionals, 20 others; $482,900.

(7) Central Great Plains Field Station, Box K, Akron, Colorado, 80720; 303-345-2259; Activities: (b), (d), (e); COSATI CODES: (02-03, 02-04); 3 professionals; 6 others; $105,500.

(8) Soil and Water Conservation Research Laboratory, 120 West Olive Street Fort Collins, Colorado, 80521; 303-482-5733; Activities: (f); COSATI CODES: (02-01, 02-03); 10 professionals; 10 others; $278,700.

(9) Southeast Watershed Research Center, Metropolitan Building, Lunkin and Douthery Streets, P.O. Box 469, Athens, Georgia, 30601; 404-548-5641; Activities: (d); COSATI CODES: (02-03, 08-08); 6 professionals, 7 others; $300,000.

(10) Southern Piedmont Soil Conservation Research Center, P.O. Box 555, Watkinsville, Georgia, 30677; 404-769-5631; Activities: (a); COSATI CODES: (02-01, 02-03, 08-08); 13 professionals, 27 others; $570,800.

(11) Northwest Watershed Research Center, 550 West Fort Street, Room 332, P.O. Box 1187, Boise, Idaho, 83701; 208-342-2711; Activities: (d), (h); COSATI CODES: (02-03, 08-08); 6 professionals, 18 others; $338,200.

(12) Snake River Conservation Research Center, Route 1, Box 186, Kimberly, Idaho, 83341; 208-423-5582; Activities: (b), (h); COSATI CODES: (02-01, 02-03, 08-08); 18 professionals, 25 others; $742,100.

(13) North Central Soil Conservation Research Center, Morris, Minnesota, 56267; 612-589-3411; Activities: (a), (g), (h); COSATI CODES: (02-01, 02-03, 08-08); 12 professionals, 26 others; $401,100.

(14) Sedimentation Laboratory, P.O. Box 30, Oxford, Mississippi, 38655; 601-234-4121, ext 4124; Activities: (d), (h), (i); COSATI CODES: (02-01, 02-03, 08-07, 08-08); 20 professionals, 32 others; $608,000.

(15) North Central Watershed Research Center, 207 East Business Loop 70, Columbia, Missouri, 65201; 314-442-2271; Activities: (d), (h); COSATI CODES: (02-03, 07-05, 08-07, 08-08); 6 professionals, 20 others; $377,000.

(16) Northern Plains Soil and Water Research Center, P.O. Box 1109, Sidney, Montana, 59270; 406-482-2020; Activities: (a), (d), (g); COSATI CODES: (02-03, 02-01); 7 professionals, 14 others; $331,500.

(17) Plant, Soils and Nutrition Laboratory, Tower Road, Ithaca, New York, 14850; 607-275-5480; Activities: (i); COSATI CODES: (02-01, 02-03); 12 professionals, 12 others; $471,200.

(18) Northern Great Plains Research Center, P.O. Box 459, Mandan, North Dakota, 58554; 701-663-6448; Activities: (b), (c); COSATI CODES: (02-01, 02-03, 02-04, 07-05); 10 professionals, 18 others; $501,100.

(19) North Appalachian Experimental Watershed, Coshocton, Ohio, 43812; 614-545-6349; Activities: (d), (h); COSATI CODES: (06-06, 02-01, 08-08); 5 professionals; 17 others; $258,600.

(20) Southern Great Plains Watershed Research Center, P.O. Box 400, Chickasha, Oklahoma, 73018; 405-224-7393; Activities: (d), (h); COSATI CODES: (08-07, 08-08); 9 professionals, 28 others; $461,800.

(21) Agricultural Water Quality Management Laboratory, Durant, Oklahoma, 74701, no phone listed; Activities: (f); COSATI CODES: (02-01, 02-03); 1 professional, 1 other; $40,300.

(22) Regional Pasture Research Laboratory, University Park, Pennsylvania, 16802; 814-237-7683; Activities: (a), (b), (d); COSATI CODES: (08-07), (08-08); 3 professionals, 2 others; $71,100.

7. Major Functions and Activities - Cont'd.

(23) Northeast Watershed Research Center, Pennsylvania State University, Research Building, Room 111, University Park, Pennsylvania, 16802; 814-238-4976; Activities: (b), (d), (h); COSATI CODES: (08-07, 08-08); 9 professionals, 6 others; $238,100.

(24) Coastal Plains Soil and Water Research Center, P.O. Box 3039, Florence, South Carolina, 29501; 803-669-5203; Activities: (a); COSATI CODES: (02-01, 02-03, 08-08); 6 professionals, 18 others; $319,700.

(25) Newell Irrigation and Dryland Field Station, Newell, South Dakota, 57760; 605-456-2595; Activities: (b), (c), (d); COSATI CODES: (02-03, 08-08); 3 professionals, 8 others; $143,800.

(26) Big Spring Field Station, P.O. Box 909, Big Spring, Texas, 79720; 915-263-2041; Activities: (g); COSATI CODES: (02-03, 08-08); 2 professionals, 3 others; $61,600.

(27) Southwestern Great Plains Research Center, Bushland, Texas, 79012; 806-376-5151; Activities: (a); COSATI CODES: (02-03, 06-06, 08-08); 9 professionals, 24 others; $467,900.

(28) Blacklands Conservation Experiment Station, P.O. Box 748, Temple, Texas, 76501; 817-773-2552; Activities: (a), (d), (h), (i); COSATI CODES: (02-03, 06-06, 08-07); 8 professionals, 21 others; $294,900.

(29) Citrus, Vegetable, Soil and Water Laboratory, P.O. Box 267, Weslaco, Texas; 78596; 512-968-4511; Activities: (b), (d), (j); COSATI CODES: (02-03, 08-08); 10 professionals, 30 others; $542,400.

(30) Soil and Water Conservation Research Station, Danville, Vermont, 05828; 802-684-3341; Activities: (d), (h); COSATI CODES: (08-07, 08-08); 4 professionals, 6 others; $176,000.

(31) Soil and Water Conservation Research Station, Washington State University, Johnson Hall, Room 215, Pullman Washington, 99163; 509-335-3633; Activities: (b), (d), (g); COSATI CODES: (02-03); 5 professionals, 7 others; $201,400.

48b 8. MAJOR EQUIPMENT:

- Analytical acid technicon
- Analytical differential unit
- Analytical digit convertor
- Automatic data system
- Centrifuge
- Channel recorder
- Channel scanner
- Chart reader system
- Chromatography apparatus
- Controlled environment growth chambers
- Data acquisition system
- Decimal converter
- Digital voltmeters
- Elaborate photographic equipment
- Elaborate water measuring structures
- Electronic recorder
- Environmental growth center
- Environmental growth chambers
- Gas chromatograph
- Lysimeters
- Mass spectrometer
- Meterological data system
- Oscillograph reader
- Photomicroscope
- Potentiometer
- Rain tower with soil freezing capability
- Scintillation system
- Spectrometer
- Spectrophotometer
- Standard laboratory equipment
- Voltmeter
- Water measurment structures and related equipment
- Water system evaluation equipment and instrumentation
- Wind tunnel
- Xray defraction unit
- Xray spectrometer

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reprints and publications, contact the following:

Dr. C. H. Wadleigh, Director
Soil and Water Conservation Research Division
USDA-ARS, Plant Industry Station
Beltsville, Md. 20705

10. DATE OF REPORT: March 13, 1970

Southeastern Agricultural Research Laboratory
INSTALLATION

USDA-ARS
AGENCY OR DEPT.

49

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: C. H. Harry Neufeld
A. TECHNICAL DIRECTOR: C. H. Harry Neufeld

3. LOCATION: A. Athens (Nearest City) B. Clarke (County) C. Georgia (State)

4. P. O. ADDRESS: Southeastern Agricultural Research Laboratory - P.O. Box 5677
A. Athens (City) B. Georgia (State) C. 30604 (Zip Code) D. 404-548-6327 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 4
B. ALL OTHER PERSONNEL (Total): 5

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 327,500
B. EXTRAMURAL (Total): $ - -

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

(a) Research investigations on the utilization of forage crops; citrus and deciduous fruits; vegetables; sunflowers; peanuts and other oilseeds; poultry and meat products. (02-01, 06-01, 06-08, 07-03, 20-02)

Plans are underway to transfer additional funds from other utilization research and development facilities to further staff this laboratory.

(b) Research to develop improved work methods, techniques, equipment and facilities for off-farm conditioning, handling, preparation for market and storage of fruits, vegetables and nuts, including determining the fundamental thermal properties and cooling characteristies of fruits and vegetables such as surface coefficients of heat transfer, mass-average temperature, etc. (02-03, 06-08, 13-04, 14-01, 14-02, 14-04, 20-13)

Engineering research to develop improved facilities, work methods and equipment for efficiently preparing poultry for market and to develop design techniques and equipment to reduce water requirements for poultry processing operations. (02-03, 06-08, 13-02, 14-01, 14-02, 14-04)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

50 Controlled air temperature chamber
Standard laboratory equipment

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports and publications, contact the following persons, according to item in Section 7:

(a) Dr. C. H. Neufeld, Director
Southeastern Utilization Research
and Development Division
College Station Road
P.O. Box 5677
Athens, Georgia 30604

(b) Dr. William C. Crow, Director
Transporation and Facilities
Research Division, USDA-ARS
Federal Center Building
Hyattsville, Maryland 20782

10. DATE OF REPORT: February 1970

Southern Utilization Research Laboratory
INSTALLATION

USDA-ARS
AGENCY OR DEPT.

51

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: C. H. Fisher
A. TECHNICAL DIRECTOR: C. H. Fisher

3. LOCATION: A. New Orleans (Nearest City) B. Orleans (County) C. Louisiana (State)

4. P. O. ADDRESS: Southern Utilization Research Laboratory, 1100 Robert E. Lee Blvd.
P. O. Box 19687
A. New Orleans (City) B. Louisiana (State) C. 70119 (Zip Code) D. 504-527-7511 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 175
B. ALL OTHER PERSONNEL (Total): 68

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 5,622,900
B. EXTRAMURAL (Total): $ 212,152

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research on improved products and processes for products from cotton and cotton processing methods. Basic and applied studies on the composition and uses of the oil and oilseed meals from cottonseed and peanuts. Studies of the composition, structure and chemical changes which occur in raw and processed rice and sweet potato products. Research directed at developing new and improved processing methods and products which will provide higher nutritional value, longer shelf life, increased consumer acceptability and ease of preparation. (02-01, 06-01, 06-08)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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52 8. MAJOR EQUIPMENT:

Cobalt 60 irradiator
Full scale pilot-plant for wet and dry textile milling operations.
Standard laboratory equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Brochure: "Laboratories and Functions of the Southern Utilization Research and Development Division, ARS, USDA."

For up-to-date reports and publications, contact:

C. H. Fisher, Director
USDA-ARS-SURDD
1100 Robert E. Lee Blvd.
P. O. Box 19687
New Orleans, Louisiana 70119

10. DATE OF REPORT: December 1969

Southern Utilization Research Stations
INSTALLATION

USDA-ARS
AGENCY OR DEPT.

53

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: C. H. Fisher
A. TECHNICAL DIRECTOR: C. H. Fisher

3. LOCATION: A. New Orleans (Nearest City) B. Orleans (County) C. Louisiana (State)

4. P. O. ADDRESS: 1100 Robert E. Lee Boulevard, P. O. Box 19687
A. New Orleans (City) B. Louisiana (State) C. 70119 (Zip Code) D. 504-527-7511 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 44
B. ALL OTHER PERSONNEL (Total): 27

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,569,200
B. EXTRAMURAL (Total): $ - -

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The program of the Southern Utilization Research Division conducts research at the following locations on these problem areas: (a) research on the composition, physical properties and characteristics of pine gum, its components, derivatives and end products directed at developing new and improved consumer and industrial products and processes; (b) research on citrus fruits for developing new and improved processing methods and for improving methods for processing vegetables and subtropical fruits; and (c) adapting canning, juice concentration, freezing pasteurizing and other procedures in food preservation technology.
For each of the research installations listed below is the mailing address, telephone number, principal activities (identified above), COSATI CODES, personne. and F.Y. 1969 total dollar obligation.

(1) Naval Stores Laboratory, P. O. Box 1, Olustee, Florida, 32072; 904-752-5589; activities: (a); COSATI CODE: (02-01, 07-03); 15 professionals, 5 others; $527,600.

(2) Fruit and Vegetable Products Laboratory, 600 Avenue S, NW, Winter Haven, Florida, 33880; 813-293-4133; activities: (b); COSATI CODE: (02-01, 06-01, 06-08); 18 professionals, 12 others; $647,100.

(3) Fruit and Vegetable Products Utilization Laboratory, P.O. Box 388, Weslaco, Texas 78596; 512-968-2404; activities: (a), (c); COSATI CODE: (02-01, 06-01); 11 professionals; 10 others; $394,500.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Organic chemistry research equipment
Pilot plant equipment for processing pine gum, rosin and turpentine
Pilot plant equipment for dehydrating juices
Pilot plant equipment for processing sugarcane
and sweet sorghum for sugar recovery

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports and publications, contact:

C. H. Fisher, Director
Southern Utilization Research Division
USDA-ARS
1100 Robert E. Lee Boulevard
P. O. Box 19687
New Orleans, Louisiana 70119

10. DATE OF REPORT: March 19, 1970

Stored Products Insects Research and Development Laboratory — INSTALLATION

USDA-ARS — AGENCY OR DEPT.

55

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: F. O. Marzke
   A. TECHNICAL DIRECTOR: F. O. Marzke

3. LOCATION: A. Savannah (Nearest City) B. Chatham (County) C. Georgia (State)

4. P. O. ADDRESS: Stored Products Insects Research and Development Laboratory, 3401 Edwin Avenue
   A. Savannah (City) B. Georgia (State) C. 31405 (Zip Code) D. 912-234-0661 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 23
   B. ALL OTHER PERSONNEL (Total): 47

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 926,500
   B. EXTRAMURAL (Total): $ - -

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research on a broad program to develop procedures and techniques for the control and prevention of insects which attack stored agricultural products. (06-01, 06-03, 06-06, 06-08, 06-19)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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56 8. MAJOR EQUIPMENT:

Electron microscope.
Laser equipment.
Bulk grain irradiator.
Environmental chambers.
Standard laboratory equipment.

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports and publications, contact:

Dr. Harold T. Cook, Director
Market Quality Research Division
USDA-ARS, Federal Center Building
Hyattsville, Maryland 20782

10. DATE OF REPORT: **January 1970**

TRANSPORTATION AND FACILITIES RESEARCH STATIONS
INSTALLATION

USDA-ARS
AGENCY OR DEPT.

57

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: William C. Crow
A. TECHNICAL DIRECTOR: William C. Crow

3. LOCATION: A. Hyattsville *(Nearest City)* B. Prince Georges *(County)* C. Maryland *(State)*

4. P. O. ADDRESS: Transportation and Facilities Research Division, USDA-ARS

A. Hyattsville *(City)* B. Maryland *(State)* C. 20782 *(Zip Code)* D. 202-388-8721 *(Telephone (Area Code & No.)*

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 56
B. ALL OTHER PERSONNEL (Total): 34

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,262,700
B. EXTRAMURAL (Total): $ --

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Transportation and Facilities Research Division conducts research at the following locations on these problem areas: (a) better, less expensive shipping containers and consumer packages for agriculture products; (b) loading methods and transport equipment for agricultural products; (c) drying conditioning, handling, storage and shelling peanuts; (d) handling, conditioning, drying, and storing off-farm field and horticultural crops; (e) handling, storing and preparing potatoes for market; (f) improving storage equipment and facilities for apples and other tree fruits; (g) packaging fruits, vegetables and poultry destined for overseas shipment; (h) promoting wholesale food marketing and warehousing facilities for agricultural products in production areas.

For each of the research installations listed below is the mailing address, telephone number, principal activities (identified above), COSATI CODES, personnel and F.Y. 1969 total dollar obligation.

(1) Northwestern Market Quality Laboratory, P.O. Box Annex Building, Room 111, Wenatchee, Washington 98801; 509-663-8317; activities: (f); COSATI CODES: (02-03, 06-03, 06-08, 13-01, 14-01, 14-02, 14-04, 20-13); 2 professionals, 1 other; $42,500.

(2) Peanut Marketing Research Laboratory, P.O. Box 110, Dawson, Georgia 31742; 912-526-0111; activities: (c); COSATI CODES: (02-03, 06-08, 13-04, 14-1, 14-04, 20-13); 6 professionals, 13 others; $317,500.

(3) Red River Valley Potato Research Center, P.O. Box 113, East Grand Forks, Minnesota 56721; 218-773-1175; activities: (e); COSATI CODE: (02-03, 06-08, 13-01, 13-04, 14-01, 14-02, 14-04, 20-13); 2 professionals, 1 other; $38,600.

(4) Transportation and Facilities Research Laboratory, Federal Building, 1130 O Street, Room 4114, Fresno, California 93721; 209-485-5267; activities: (a); COSATI CODE: (06-02); 3 professionals, 1 other; $42,500.

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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ITEM 7 MAJOR FUNCTION AND ACTIVITIES - Cont.

(5) Transportation and Facilities Research Laboratory, Federal Center Building Hyattsville, Maryland 20782; 301-388-8721; activities; (d), (g), (h); COSATI CODE: (02-02, 06-08, 13-04, 14-01); 36 professionals, 15 others; $705,900.

(6) Transportation Technology and Packaging Investigations Laboratory, 2607 North Orlando, Florida 32804; 305-422-2686; activities: (a), (b); COSATI CODE: (02-02, 06-08, 13-01, 13-04, 13-06, 14-01); 5 professionals, 2 others; $83,500.

(7) Transportation and Facilities Research Laboratory, Third and Chesnut Streets, Room 203, Yakima, Washington, 98901; 509-248-5336; activities: (a) COSATI CODES: (02-02, 06-08, 13-04, 14-01); 2 professionals, 1 other; $32,200.

8.MAJOR EQUIPMENT:

Cold storage rooms
Compression tester
Controlled temperature and humidity rooms
Inclined plane impact tester
Low temperature drying chambers
Packaging machinery
Pilot-scale peanut shelling plant
Potato storage equipment
Shipping container drop tester
Variable air, temperature and speed belt dryers
Vibration tester

9.COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports of research activities and recent publications, contact:

Mr. William C. Crow, Director
Transportation and Facilities
Research Division, USDA-ARS
Federal Center Building
Hyattsville, Maryland 20782

10. DATE OF REPORT: March 1970

Western Utilization Research Laboratory
INSTALLATION

USDA-ARS
AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: A. I. Morgan, Jr.
A. TECHNICAL DIRECTOR: A. I. Morgan, Jr.

3. LOCATION: A. Albany (Nearest City) B. Alameda (County) C. California (State)

4. P. O. ADDRESS: Western Utilization Research Laboratory, 800 Buchanan Street
A. Albany (City) B. Calif. (State) C. 94710 (Zip Code) D. 415-525-2244 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 234
B. ALL OTHER PERSONNEL (Total): 137

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 6,087,800
B. EXTRAMURAL (Total): $ 150,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research on food uses of western produce, including citrus, tree nuts, vegetables, poultry products, wheat, rice, dried beans and peas. Research on industrial uses of wool and mohair; also castor and safflower for animal feed. Studies of the pharmacology and toxicology of constituents of plant and animal products with emphasis on natural toxins. (02-01, 06-01, 06-08, 06-15, 06-20, 20-02)

Research on the engineering aspects of food processing and the storage of processed food. Analyses of the chemical and biochemical processes which take place in plant and animal foodstuffs. Research on the recovery of leaf protein for feed and food uses; on improved processing methods for Western forage crops with emphasis on alfalfa. Techniques of single crystal and polymer crystallography and spectroscopy are used in the research projects listed. (02-01, 06-01, 06-08, 06-15, 06-20, 20-02)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

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8. MAJOR EQUIPMENT:

Food processing equipment capable of concentration, dehydration and flavor recovery.
Gas chromatograph.
Standard laboratory equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Brochure: "Western Utilization Research and Development Division, ARS, USDA."
"Laboratories and Functions of the Western Utilization Research and Development Division, ARS, USDA."

For up-to-date reports and publications, contact:

A. I. Morgan, Director
USDA-ARS-WURDD
800 Buchanan Street
Albany, California, 94710

10. DATE OF REPORT: December 1969

Forest Products Laboratory
INSTALLATION

USDA (Forest Service)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: H. O. Fleischer
A. TECHNICAL DIRECTOR: H. O. Fleischer

3. LOCATION: A. Madison (Nearest City) B. Dane (County) C. Wisconsin (State)

4. P. O. ADDRESS: North Walnut Street

A. Madison (City) B. Wisconsin (State) C. 53705 (Zip Code) D. 608-257-2211 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 107.1
B. ALL OTHER PERSONNEL (Total): 109.6

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 5,309,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research on:

1. Processing systems that utilize the complete tree and increase the utilization of low-quality trees, under-used species, wood residues, and waste paper.
2. New wood pulping processes to increase fiber yields and reduce pollution.
3. Characterization of wood and timber quality to improve grading and to enable allocation of raw materials to highest value use.
4. Engineering concepts for the more efficient use of wood in structural applications with emphasis on low-cost house construction.

(02-06 Agriculture - development, management, and cultivation of forests)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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62 8. MAJOR EQUIPMENT:

X-ray diffraction and fluoresence apparatus; Hydrogenation laboratory; infrared, ultra-violet, visible, near-infrared spectrophotometers; 18 universal type testing machines; 19 dynamic and dead load testing machines; one high speed experimental paper board corrugator; 10 environmental simulation units. Especially constructed apparatus for full scale testing of wood trusses, laminated beams, and arches; complete experimental paper machine, Fourdrinier type, with beaters, hydrapulper, pressure refiners, flat screen, and expander rolls; complete experimental wood pulping equipment for mechanical, chemi-mechanical and chemical pulping and secondary fiber handling; wood pulp bleach plant; experimental hardboard equipment with wood defibrator; board former, hammermill, and steam heated presses; complete experimental and standard paper and wood pulping testing laboratories; complete veneer and plywood experimental pilot plant; complete modified wood composite board maker and laboratory; 9 experimental dry kilns; one 17-acre Exposure site for the study of natural weathering of wood and wood products and their protective finishes; one experimental Fire Test Laboratory including vertical fire endurance furnaces for full-scale specimens; and burn-out room. Wood Preservation Autoclave for vacuum and pressure treating of posts and timbers; Electron microscope; Scanning electron microscope; complete microscope laboratory; IBM 1620 computor; 35 Constant temperature-humidity environmental rooms.

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports of research activities and recent publications, contact:

Director
Forest Products Laboratory
U.S. Forest Service
Madison, Wisconsin 53705

10. DATE OF REPORT: November, 1969

FORESTRY RESEARCH HEADQUARTERS
INSTALLATION

USDA(Forest Service)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: R. K. Arnold
A. TECHNICAL DIRECTOR: R. K. Arnold

3. LOCATION: A. Washington (Nearest City) B. (County) C. D.C. (State)

4. P. O. ADDRESS: 12th and Independence Avenue, S.W., Forestry Research Headquarters
A. Washington (City) B. D.C. (State) C. 20250 (Zip Code) D. 202-DU8-6666 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 25
B. ALL OTHER PERSONNEL (Total): 38

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 993,000
B. EXTRAMURAL (Total): $ 224,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The research program covers the following problems areas: (a) Physiology of growth, nutrition and mycorrhizae relationships, (b) Biology and physiology of fungi, (c) Tropical timber culture and utilization, (d) Taxonomy of forest trees and range plants, (e) Evaluation of timber supply, demand and price relations. (02-06 Agriculture-Forestry; 06-06 Environmental Biology; 11-12 Wood and Paper Products).

For each of the installations, listed below is the mailing address, telephone number, principal activities (identified above), personnel and FY 1969 total dollar obligation.

(1) Forest Physiology Laboratory, Plant Industry Greenhouse 18, Range 1, Beltsville, Md. 27075; 301-474-6500; activities: (a) 4 professionals, 7 others; $149,000.

(2) Forest Disease Laboratory, RFD 2 Box 263, Laurel, Md. 20810; 301-474-4800 ext. 205; activities: (b); 4 professionals, 9 others; $158,000.

(3) Institute of Tropical Forestry, P. O. Box 577, Rio Piedras, Puerto Rico 00928; 809-765-0404; activities: (c); 3 professionals, 14 others; $285,000.

(4) Forestry Services Laboratory, USDA South Building, 12th and Independence Ave., S.W., Washington, D.C. 20250; 202-388-6666; activities: (d), (e); 14 professionals, 8 others; $401,000.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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8. MAJOR EQUIPMENT:

Experimental forest
Natural area
Greenhouses

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports of research activities and recent publications, contact:

Deputy Chief for Research
Forest Service
USDA, South Building
Washington, D. C. 20250

10. DATE OF REPORT: February, 1970

INTERMOUNTAIN FOREST AND RANGE EXPT. STATIONS — INSTALLATION

USDA (Forest Service) — AGENCY OR DEPT.

65

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Joseph F. Pechanec
   A. TECHNICAL DIRECTOR: Joseph F. Pechanec

3. LOCATION: A. Ogden (Nearest City) B. Weber (County) C. Utah (State)

4. P. O. ADDRESS: 507 25th Street, Intermountain Forest & Range Expt. Station
   A. Ogden (City) B. Utah (State) C. 84401 (Zip Code) D. 801-399-6011 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 89
   B. ALL OTHER PERSONNEL (Total): 107

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 3,663,000
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (include COSATI Codes):

The program of forestry research at the Intermountain Station is aimed at increased forest resource management, protection, and utilization. The program, including R&D, covers research on the following problem areas appropriate to the major commercial forest types: (a) Timber culture and genetics, (b) Utilization, marketing and production economics, (c) Recreation, range and wildlife management, (d) Timber measurement and evaluation, (e) Fire physics and management, (f) Hydrology and soil stabilization, (g) Forest engineering, (h) Insect and disease control.

(02-06) Agriculture-Forestry, Development, Management and Cultivation; 02-03 Agriculture-Engineering, Water Conservation; 11-12 Materials, Wood and Paper).

For each of the research installations, listed below is the mailing address, telephone number, principal activities (identified above), personnel and FY 1969 total dollar obligation.

(1) Forestry Sciences Laboratory, 316 E. Myrtle St., Boise, Idaho 83706; 208-342-2711; activities: (a), (c), (f); 6 professionals, 10 others; $244,000.

(2) Forestry Sciences Laboratory, Montana State University, Bozeman, Mont. 59715; 406-587-3197; activities: (a), (c), (g); 7 professionals, 4 others; $279,000.

(3) Forestry Sciences Laboratory, 860 North 12th East, Logan, Utah 84321; 801-752-1311; activities: (c), (f), (h); 10 professionals, 12 others; $493,000.

(4) Forestry Sciences Laboratory, Univ. of Montana, Drawer 7, Missoula, Montana 59801; 406-549-6511; activities: (a), (b), (c); 11 professionals, 5 others, $309,000.

(5) Northern Forest Fire Laboratory, Missoula, Montana 59801; 406-543-5167; activity: (e); 19 professionals, 35 others; $1,061,000.

(6) Forestry Sciences Laboratory, 1221 South Main P.O. Box 469, Moscow, Idaho 83843; 208-882-3557; activities: (a), (d), (f), (h); 18 professionals, 22 others; $704,000.

(continued)

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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7. MAJOR FUNCTIONS AND ACTIVITIES (continued)

(7) Intermountain Forest & Range Expt. Stn., 507 25th St., Ogden, Utah 84401; 801-399-6011; activities: (a), (b), (c), (d), (h); 14 professionals, 14 others; $452,000.

(8) Forestry Sciences Laboratory, Federal Bldg., B2, 88 West 1st North, Provo, Utah 84601; 801-374-7218; activity: (c); 4 professionals, 5 others; $121,000.

8. MAJOR EQUIPMENT:

Experimental forests
Natural areas
Greenhouses
Experimental watersheds
Infra-red scanner and recorder
Cathode ray recording system
Wind tunnel
Doppler navigation system

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports of research activities and recent publications, contact:

Director
Intermountain Forest and Range Experiment Station
507 25th Street
Ogden, Utah 84401

10. DATE OF REPORT: February, 1970

NORTH CENTRAL FOREST EXPERIMENT STATIONS
INSTALLATION

USDA (Forest Service)
AGENCY OR DEPT

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: David B. King
   A. TECHNICAL DIRECTOR: David B. King

3. LOCATION: A. St. Paul (Nearest City) B. Ramsey (County) C. Minnesota (State)

4. P. O. ADDRESS: Folwell Avenue
   A. St. Paul (City) B. Minnesota (State) C. 55101 (Zip Code) D. 612-645-0841 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 93
   B. ALL OTHER PERSONNEL (Total): 89

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 3,662,000
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The program of forestry research at the North Central Station is aimed at increased forest resource management, protection, and utilization. The program, including R&D, covers research on the following problem areas appropriate to the major commercial forest types: (a) Improved timber culture and genetics, (b) Water hydrology, (c) Improved utilization and marketing, (d) Physiology of wood formation, (e) Fire, insect and disease control, (f) Evaluation of timber trends, (g) Forest engineering systems, (h) Recreation and wildlife management.
(02-06 Agriculture-Forestry, Development, Management and Cultivation; 02-03 Agriculture-Engineering, Water Conservation; 11-12 Materials, Wood and Paper). For each of the research installations,listed below is the mailing address, telephone number, principal activities (Identified above), personnel and FY 1969 total dollar obligation.

(1) Forestry Sciences Laboratory, Southern Illinois Univ., Carbondale, Illinois 62901; 618-549-7383; activities: (a), (c); 14 professionals, 19 others; $579,000.

(2) Forestry Sciences Laboratory, 201 Bessey Hall, Iowa State Univ., Ames, Iowa 50010; 515-292-2576; activity: (a); 2 professionals, 5 others; $100,000.

(3) Forestry Sciences Laboratory, 1-26 Agriculture Bldg., Univ. of Missouri, Columbia, Mo. 65201; 314-442-2271, ext. 3181; activities: (a), (e); 7 professionals, 5 others; $246,000.

(4) Forestry Sciences Laboratory, 118 Old Main Bldg., Univ. of Minnesota, 23d Avenue & E. 5th St., Duluth, Minn. 55812; 218-727-6692, ext. 314; activity: (c); 8 professionals, 6 others; $240,000.

(5) Forestry Sciences Laboratory, 215 Natural Resources Bldg., Michigan State Univ., E. Lansing, Michigan 48823; 517-355-7740; activities: (a), (b), (e); 9 professionals, 5 others; $217,000.

(6) Northern Conifers Laboratory, Grand Rapids, Minn. 55744; 218-326-3201; activities: (a), (b); 6 professionals, 7 others; $284,000.

(Continued)

7. Major Functions and Activities (Continued)

(7) Forest Engineering Laboratory, Michigan Technological Univ., Houghton, Mich. 49931; 906-482-6303; activity: (g); 3 professionals, 2 others; $105,000.

(8) Forest Watershed Laboratory, P.O. Box 872, LaCrosse, Wisconsin 54601; 608-782-4224; activity: (b); 2 professionals, 3 others; $95,000.

(9) Northern Hardwoods Laboratory, 806 Wright St., Marquette, Mich. 49855; 906-225-1323; activity: (a); 6 professionals, 6 others; $232,000.

(10) Institute of Forest Genetics, Star Route 2, Rhinelander, Wisconsin 54501; 715-362-7474; activities: (a), (d); 10 professionals, 13 others; $533,000.

(11) North Central Forest Experiment Station, Folwell Avenue, St. Paul, Minn. 55101; 612-645-0841; activities: (a), (e), (f), (h); 26 professionals, 18 others; $1,031,000.

8. MAJOR EQUIPMENT

Experimental forests
Greenhouses
Natural areas
Irradiation field
Ultramicrotome
Gilson respirometer
Amino-acid protein analyser

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports of research activities and recent publications, contact:

Director
North Central Forest Experiment Station
Folwell Avenue
St. Paul, Minnesota 55101

10. DATE OF REPORT: February, 1970

NORTHEASTERN FOREST EXPERIMENT STATIONS
INSTALLATION

USDA (Forest Service)
AGENCY OR DEPT.

69

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Richard D. Lane
A. TECHNICAL DIRECTOR: Richard D. Lane

3. LOCATION: A. Upper Darby (Nearest City) B. Delaware (County) C. Pennsylvania (State)

4. P. O. ADDRESS: 6816 Market Street, Northeastern Forest Experiment Stations
A. Upper Darby (City) B. Penn. (State) C. 19082 (Zip Code) D. 215-352-5800 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 112
B. ALL OTHER PERSONNEL (Total): 181

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 5,217,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The program of forestry research at the Northeastern Station is aimed at increased forest resource management, protection, and utilization. The program, including R&D, covers research on the following problem areas appropriate to the major commercial forest types: (a) Forest economics, marketing and utilization improvement, (b) Timber culture and genetics, (c) Measurement and evaluation of growth and quality, (d) Forest insects and diseases, (e) Recreation and wildlife management, (f) Forest engineering, (g) Minor forest products, (h) Forest Hydrology, (i) Strip mined area restoration. (02-06 Agriculture-Forestry, Development, Management and Cultivation; 02-03 Agriculture-Engineering, Water Conservation; 11-12 Materials, Wood and Paper).

For each of the research installations listed below is the mailing address, telephone number, principal activities (identified above), personnel and FY 1969 total dollar obligation.

(1) Forestry Sciences Laboratory, 204 Center St., Berea, Kentucky 40403; 606-986-8431; activities: (d), (g), (i); 11 professionals, 14 others; $383,000.

(2) Sugar Maple Laboratory, Federal Bldg., Burlington, Vermont 05401; 802-862-6284; activity: (g); 6 professionals, 13 others, $301,000.

(3) Forestry Sciences Laboratory, 226 Old Federal Bldg., Columbus, Ohio 43215; 614-469-6806; activities: (a), (c), (h); 9 professionals, 8 others; $359,000.

(4) Forest Insect and Disease Laboratory, P. O. Box 365, Delaware, Ohio 43015; 614-363-1126; activity; (d); 18 professionals, 22 others; $729,000.

(5) Forestry Sciences Laboratory, Batchedler Bldg., Diver Rd., Rt. #108, Durham, N. H. 03824; 603-868-7727; activities: (b), (d), (e), (h); 13 professionals, 13 others; $484,000.

(6) Forest Insect and Disease Laboratory, 151 Sanford St., Hamden, Conn. 06514; 203-772-6133; activity: (d); 11 professionals, 19 others; $648,000.

(Continued)

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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7. MAJOR FUNCTIONS AND ACTIVITIES (Continued)

(7) Forestry Sciences Laboratory, 180 Canfield St., Morgantown, W. Va. 26505; 304-296-3364; activities: (e), (f),; 6 professionals, 7 others; $291,000.

(8) Timber Research Laboratory, USDA Bldg., Univ. of Maine, Orono, Maine 04473; 207-942-8388; activity: (b); 4 professionals, 2 others; $112,000.

(9) Timber and Watershed Laboratory, P.O. Box 445, Nursery Bottom, Parsons, W. Va. 26287; 304-478-2000; activities: (b), (h); 3 professionals, 18 others; $231,000.

(10) Forest Products Marketing Laboratory, P.O. Box 152, Princeton, W. Virginia 24740; 304-425-8106; activity: (a); 12 professionals, 40 others; $891,000.

(11) Forestry Sciences Laboratory, c/o State Univ. of New York, College of Forestry, Syracuse, N. Y. 13210; 315-476-3151; activity: (e); 2 professionals, 6 others; $126,000.

(12) Northeastern Forest Experiment Station, 6816 Market St., Upper Darby, Pa. 19082; 215-352-5800; activities: (a), (c), (h); 15 professionals, 16 others; $564,000.

(13) Forestry Sciences Laboratory, P.O. Box 928, Warren, Pa. 16365; 814-563-7587; activities: (b), (e); 2 professionals, 3 others; $98,000.

8. MAJOR EQUIPMENT

Experimental forests
Natural areas
Greenhouses
Electron microscope

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports of research activities and recent publications, contact:

Director
Northeastern Forest Experiment Station
6816 Market Street
Upper Darby, Pennsylvania 19082

10. DATE OF REPORT:

PACIFIC NORTHWEST FOREST AND RANGE EXPERIMENT STATIONS	USDA (Forest Service)
INSTALLATION	AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Philip A. Briegleb A. TECHNICAL DIRECTOR: Philip A. Briegleb

3. LOCATION: A. Portland *(Nearest City)* B. Multnomah *(County)* C. Oregon *(State)*

4. P. O. ADDRESS: 809 NE 6th Avenue, P. O. Box 3141, Pacific N.W. Forest and Range Exp. Sta.

A. Portland *(City)* B. Oregon *(State)* C. 97208 *(Zip Code)* D. 503-234-3361 *(Telephone (Area Code & No.))*

5. PERSONNEL: **(As of June 1969):**
A. R&D PROFESSIONALS (Total): 113
B. ALL OTHER PERSONNEL (Total): 104

6. FUNDING **(Approximate FY 1969 Dollar Obligation):**
A. INTRAMURAL (Total): $ 4,629,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES **(Include COSATI Codes):**

The program of forestry research at the Pacific Northwest Station is aimed at increased forest resource management, protection, and utilization. The program, including R&D, covers research on the following problem areas appropriate to the major commercial forest types: (a) Timber culture and genetics,(b) fire, insect, and disease control, (c) forest engineering, (d) hydrology and erosion control, (e) range, recreation and wildlife management, (f) measurement and evaluation of timber, (g) wood use, marketing and production economics.
(02-06 Agriculture-Forestry, Development, Management and Cultivation; 02-03 Agriculture-Engineering, Water Conservation; 11-12 Materials, Wood and Paper).
For each of the research installations, listed below is the mailing address, telephone number, principal activities (identified above), personnel and FY 1969 total dollar obligation.

(1) Silviculture Laboratory, 1027 Trenton Avenue., P. O. Box 1208, Bend, Oregon 97701; 503-382-6922; activity: (a); 4 professionals, 5 others; $178,000.

(2) Forestry Sciences Laboratory, College, Alaska 99701; 907-479-7313; activities: (a), (b); 5 professionals, 5 others,; $273,000.

(3) Forestry Sciences Laboratory, 3200 Jefferson Way, P. O. Box 887, Corvallis, Oregon 97330; 503-752-4281; activities: (a) (b), (d); 39 professionals, 30 others; $1,450,000.

(4) Institute of Northern Forestry, Federal Bldg., P. O. Box 909, Juneau, Alaska 99801; 907-586-7301; activities: (a), (b), (d), (f); 12 professionals, 10 others; $479,000.

(5) Range and Wildlife Habitat Laboratory, C Avenue and Gekeler Lane, P. O. Box F, LaGrande, Oregon 97850; 503-963-7122; activity: (e); 6 professionals, 4 others; $259,000.

(6) Forestry Sciences Laboratory, Route 4, Box 500, Olympia, Washington 98501; 206-943-7200, activity: (a) 7 professionals, 10 others; $295,000.

(Continued)

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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72 7. MAJOR FUNCTIONS AND ACTIVITIES: (continued)

(7) Forestry Services Laboratory, 809 NE. 6th Ave., P. O. Box 3141, Portland, Oregon 97208; 503-234-3361; activities: (a), (b), (f), (g); 21 professionals, 26 others; $883,000.

(8) Forestry Services Laboratory, 4507 University Way, NE., Seattle, Washington 98105; 206-583-7814; activities: (b), (c), (e), (g); 14 professionals, 7 others; $546,000.

(9) Forest Hydrology Laboratory, 1133 N. Western Avenue., P.O. Box 1628, Wenatchee, Washington 98801; 509-663-8511; activity: (d); 5 professionals, 7 others; $266,000.

8. MAJOR EQUIPMENT

Experimental forests
Greenhouses
Natural Areas
Experimental watersheds
Nuclear probes
Gamma ray detector
Infra-red thermometry

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports of research activities and recent publications, contact:

Director
Pacific Northwest Forest and Range Experiment Station
809 NE 6th Avenue
P. O. Box 3141
Portland, Oregon 97208

10. DATE OF REPORT:

PACIFIC SOUTHWEST FOREST AND RANGE EXPERIMENT STATIONS — INSTALLATION

USDA (Forest Service) — AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
   (1) ☒ GOVERNMENT-OPERATED
   (2) ☐ FFRDC
   (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
   (1) ☐ GOVERNMENT-OPERATED
   (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Robert D. McCulley

A. TECHNICAL DIRECTOR: Robert D. McCulley

3. LOCATION: A. Berkeley *(Nearest City)* B. Alameda *(County)* C. California *(State)*

4. P. O. ADDRESS: P. O. Box 245, 1960 Addison Street, Pacific S.W. For. & Rge. Exp. Sta.

A. Berkeley *(City)* B. California *(State)* C. 94701 *(Zip Code)* D. 415-841-5121 *(Telephone (Area Code & No.)*

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 81
   B. ALL OTHER PERSONNEL (Total): 118

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 3,652,000
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The program of forestry research at the PSW Experiment Station is aimed at increased forest resource management, protection, and utilization. The program, including R&D, covers research on the following problem areas appropriate to the major commerical forest types: (a) Timber culture and genetics, (b) Fire, insect and disease control, (c) Range, recreation, wildlife and multiple use management, (d) Utilization, marketing and economics, (e) Forest Hydrology and sediment control, (f) remote sensing and mensuration.

(02-06 Agriculture-Forestry, Development, Management and Cultivation; 02-03 Agriculture-Engineering, Water Conservation; 11-12 Materials, Wood and Paper).

For each of the research installations, listed below is the mailing address, telephone number, principal activities (identified above), personnel and FY 1969 total dollar obligation.

(1) Forestry Sciences Laboratory, 1651 Rossow St., Arcata, California 95521; 707-822-0225; activity: (a); 2 professionals, 1 other; $53,000.

(2) PSW Experiment Station, 1960 Addison St., Berkeley, California 94701; 415-841-5121; activities: (a), (b), (c), (d), (e), (f); 48 professionals, 57 others; $2,126,000.

(3) Forestry Sciences Laboratory, Federal Building U.S. Court House, 1130 "O" St., Fresno, Calif. 93721; 209-485-5439; activity: (c); 3 professionals, 5 others; $142,000.

(4) Institute of Pacific Islands Forestry, 530 So. Hotel St., Honolulu, Hawaii 96814; Honolulu 546-5644; activities: (a), (e); 3 professionals, 7 others; $147,000.

(5) Forestry Sciences Laboratory, 1615 Continental S., Redding, Calif. 96001; 916-241-2312; activity: (a); 4 professionals, 6 others; $139,000.

(6) Forest Fire Laboratory, 4955 Canyon Crest Dr., Riverside, Calif. 92507; 714-686-9320; activities: (b), (e); 21 professionals, 42 others; $1,045,000.

8. MAJOR EQUIPMENT:

- Experimental forests
- Greenhouses
- Experimental watersheds
- Remote sensing airplane
- Microdensitometer
- Radio sonde tracker
- Natural Areas
- Arboretum
- Nuclear snow gauges and soil probe
- Combustion chamber
- Spectrophotometer
- Digital recorders

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports of research activities and recent publications, contact:

Director
Pacific Southwest Forest and Range Experiment Station
1960 Addison Street
Berkeley, California 94701

10. DATE OF REPORT: February, 1970

ROCKY MOUNTAIN FOREST AND RANGE EXPERIMENT STATIONS — INSTALLATION
USDA (FOREST SERVICE) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Raymond Price
   A. TECHNICAL DIRECTOR: Raymond Price

3. LOCATION: A. Fort Collins (Nearest City) B. Larimer (County) C. Colorado (State)

4. P. O. ADDRESS: 240 West Prospect Street, Rocky Mountain Forest and Rge. Exp. Station
   A. Fort Collins (City) B. Colorado (State) C. 80521 (Zip Code) D. 303-482-7332 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 92
   B. ALL OTHER PERSONNEL (Total): 95

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 3,308,000
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The program of forestry research at the Rocky Mountain Station is aimed at increased forest resource management, protection, and utilization. The program, including R&D, covers research on the following problem areas appropriate to the major commercial forest types: (a) Timber culture and measurement, (b) Wood utilization and marketing, (c) Fire, insect and disease control, (d) Water yield and erosion control, (e) Range and wildlife management.
(02-06 Agriculture-Forestry, Development, Management and Cultivation; 02-03 Agriculture-Engineering, Water Conservation; 11-12 Materials, Wood and Paper).

For each of the research installations, listed below is the mailing address, telephone number, principal activities (identified above), personnel and FY 1969 total dollar obligation.

(1) Forestry Sciences Laboratory, Room 5423, New Federal Bldg., 517 Gold Ave., SW, Albuquerque, New Mex. 87101; 505-843-2384; activities: (c), (d), (e); 8 professionals, 6 others; $201,000.

(2) Shelterbelt Laboratory, P.O. Box 25, Bottineau, N. Dakota 58318; 701-228-2259; activities: (a), (c); 4 professionals, 10 others; $220,000.

(3) Forestry Sciences Laboratory, Northern Arizona Univ., Flagstaff, Ariz. 86003; 602-774-1467; activities: (a), (b), (c), (d), (e); 12 professionals, 23 others; $532,000.

(4) Rocky Mtn. Forest & Range Expt. Stn., 240 West Prospect St., Ft. Collins, Colo., 80521; 303-482-7332; activities: (a), (b), (c), (d), (e); 37 professionals, 20 others; $1,204,000.

(5) Forest Range and Watershed Laboratory, Univ. of Wyoming, Laramie, Wyo. 82070; 307-742-6621; activities: (d), (e); 5 professionals, 3 others; $129,000.

(6) Forestry Sciences Laboratory, 205 Sycamore Hall, East Campus, Univ. of Nebraska, Lincoln, Nebr. 68503; 402-434-2252; activities: (a), (c); 3 professionals, 4 others; $121,000.

(Continued)

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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7. Major Functions and Activities (Continued):

(7) Forestry Research Laboratory, South Dakota School of Mines and Technology, Rapid City, S. Dakota 57701; 605-348-1451; activities: (a), (d), (e); 7 professionals, 10 others; $249,000.

(8) Forest Hydrology Laboratory, Arizona State University, Tempe, Arizona 85281; 602-261-4365; activities: (d), (e); 12 professionals, 17 others; $492,000.

(9) Forestry Sciences Laboratory, Tumamoc Hill, University of Arizona, P.O. Box 5735, Tucson, Arizona 85703; 602-624-9621; activities: (d), (e); 4 professionals, 2 others; $161,000.

8. Major Equipment:

Experimental forests
Greenhouses
Natural Areas
Roll laminator
Growth chambers

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports of research activities and recent publications, contact:

Director
Rocky Mountain Forest and Range Experiment Station
240 West Prospect Street
Fort Collins, Colorado 80521

10. DATE OF REPORT: February, 1970

SOUTHEASTERN FOREST EXPERIMENT STATIONS
INSTALLATION

USDA (Forest Service)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Walter M. Zillgett
A. TECHNICAL DIRECTOR: Walter M. Zillgett

3. LOCATION: A. Asheville (Nearest City) B. Buncombe (County) C. North Carolina (State)

4. P. O. ADDRESS: Post Office Bldg., P. O. Box 2570, Southeastern Forest Exp. Station
A. Asheville (City) B. N. C. (State) C. 28802 (Zip Code) D. 704-254-0961 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 118
B. ALL OTHER PERSONNEL (Total): 189

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 4,582,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The program of forestry research at the Southeastern Station is aimed at increased forest resource management, protection, and utilization. The program, including R&D, covers research on the following problem areas appropriate to the major commercial forest types: (a) Timber physiology and culture, (b) Fire, insects, and disease control, (c) Landscape, recreation and wildlife management, (d) Naval stores production, (e) Air pollution effects, (f) Measurement and evaluation of growth and quality, (g) House construction techniques, (h) Hydrology and water yield improvement (i) Forest soil formation.

(02-06 Agriculture-Forestry, Development, Management and Cultivation; 02-03 Agriculture-Engineering, Water Conservation; 11-12 Materials, Wood and Paper). For each of the research installations, listed below is the mailing address, telephone number, principal activities (identified above), personnel and FY 1969 total dollar obligation.

(1) Southeastern Forest Expt. Stn., P. O. Box 2570, Asheville, N.C. 28802; 704-254-0961; activities: (a), (c), (e), (f); 20 professionals, 46 others; $939,000.

(2) Forestry Sciences Laboratory, Carlton St., Athens, Ga. 30601; 404-546-2011; activities: (a), (b), (f), (g); 25 professionals 30 others; $905,000.

(3) Forestry Sciences Laboratory, 105 Wilson Ave., Blacksburg, Va. 24060; 703-552-1461; activities: (a), (c); 5 professionals, 3 others; $134,000.

(4) Forestry Sciences Laboratory, 334 Meeting St., Room 620, Fed. Bldg., Charleston, S.C. 29403; 803-577-4171 ext. 271; activities: (a), (h); 6 professionals, 10 others; $261,000.

(5) Coweeta Hydrologic Laboratory, P. O. Box 601, Franklin, N.C. 28734; 704-524-2025; activity: (h); 3 professionals, 10 others; $204,000.

(6) Forest Resources Laboratory, P.O. Box 938, Lehigh Acres, Fla. 33936; 813-334-4579; activities: (a), (c); 6 professionals, 7 others; $122,000.

(7) Southern Forest Fire Laboratory, Georgia Forestry Cntr., Riggins Mill Rd., P. O. Box 185, Macon, Ga. 31202; 912-746-3531; activities: (a), (b); 19 professionals, 29 others; $684,000.

(Continued)

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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7. Major Functions and Activities (Continued):

(8) Forestry Sciences Laboratory, P. O. Box 900, Marianna, Fla. 32446; 904-482-4051; activity: (a); 3 professionals, 7 others; $126,000.

(9) Naval Stores and Timber Production Laboratory. P. O. Box 3, Olustee, Fla. 32072; 904-752-0331; activities: (a), (d); 14 professionals, 25 others; $557,000.

(10) Forestry Sciences Laboratory, P. O. Box 12254, Research Triangle Park, N.C. 27709; 919-549-8193; activities: (b), (c), (f), (i); 17 professionals, 22 others, $650,000.

8. Major Equipment:

Natural areas
Greenhouses
Experimental forests
Irradiation device
Aerial bucket man lift

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports of research activities and recent publications, contact:

Director
Southeastern Forest Experiment Station
Post Office Bldg., P.O. Box 2570
Asheville, North Carolina 28802

10. DATE OF REPORT: February 1970

SOUTHERN FOREST EXPERIMENT STATIONS — INSTALLATION

USDA (Forest Service) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: R. L. Youngs   A. TECHNICAL DIRECTOR: R. L. Youngs

3. LOCATION: A. New Orleans (Nearest City) B. Orleans (County) C. Louisiana (State)

4. P. O. ADDRESS: T-10210 Federal Bldg., 701 Loyola Avenue, Southern Forest Exp. Sta.
   A. New Orleans (City) B. Louisiana (State) C. 70113 (Zip Code) D. 504-527-6787 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 105
   B. ALL OTHER PERSONNEL (Total): 188

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 4,806,000
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The program of forestry research at the Southern Station is aimed at increased forest resource management, protection, and utilization. The program, including R&D, covers research on the following problem areas appropriate to the major commercial forest types: (a) control of fire, insects and diseases, (b) timber culture and genetics, (c) artificial regeneration, (d) protection of wood in use, (e) improved utilization, (f) management of wildlife and water resources, (g) production economics, (h) evaluation of timber trends, (i) forest engineering. (02-06) Agriculture-Forestry, Development, Management and Cultivation; 02-03 Agriculture-Engineering, Water Conservation; 11-12 Materials, Wood and Paper).

For each of the research installations, listed below is the mailing address, telephone number, principal activities (identified above), personnel and FY 1969 total dollar obligation.

(1) Alexandria Forestry Center, 2500 Shreveport Highway, Pineville, Louisiana 71360; 318-445-3371; activities: (a), (b), (c), (e); 24 professionals, 42 others; $1,158,000.

(2) Forest Hydrology Laboratory, P. O. Box 7, Oxford, Mississippi 38655; 601-234-2744; activity: (f); 7 professionals, 11 others; $291,000.

(3) Forestry Sciences Laboratory, P. O. Box FY, State College, Mississippi 39762; 601-323-4321; activities: (a), (c); 4 professionals, 2 others; $144,000.

(4) Institute of Forest Genetics and Forest Insects and Disease Laboratory, P. O. Box 2008, Evergreen Station, Gulfport, Mississippi 39501; 601-863-6132; activities: (a), (b), (d); 21 professionals, 51 others; $1,051,000.

(5) Silviculture Laboratory, SPO Box 1037, Sewanee, Tennessee 37375; 615-598-5154; activity: (b); 4 professionals, 4 others; $137,000.

(6) Southern Forest Experiment Station, T-10210 Federal Bldg., 701 Loyola Avenue, New Orleans, Louisiana 70113; 504-527-6785; activities: (g), (h); 12 professionals, 23 others; $541,000.

(Continued)

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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80 7. MAJOR FUNCTIONS AND ACTIVITIES (continued)

(7) Southern Hardwoods Laboratory, P. O. Box 227, Stoneville, Mississippi 38766; 601-686-7218; activities: (a), (b); 15 professionals, 22 others; $697,000.

(8) Agricultural Engineering Laboratory, Auburn University, Auburn, Alabama 36830; 205-887-4518; activities: (b), (i); 5 professionals, 7 others; $247,000.

(9) Forestry Sciences Laboratory, P. O. Box 249, Harrison, Arkansas 72601; 501-365-3085; activities: (b), (f); 8 professionals, 18 others; $364,000.

(10) Forestry Sciences Laboratory, P. O. Box 7600, S.F.A. Station, Nacogdoches, Texas 75961; 713-564-8491; activities: (b), (f); 5 professionals, 7 others; $176,000.

8. MAJOR EQUIPMENT:

Experimental forest
Greenhouses
Differential scanning calorimeter
Plywood testing machine
Hot plate hydraulic press
Wood toughness tester

9. COMMENT AND PUBLICATION REFERENCES:

For up-to-date reports of research activities and recent publications, contact:

Director
Southern Forest Experiment Station
Federal Building
701 Loyola Avenue
New Orleans, Louisiana 70113

10. DATE OF REPORT: February 1970

Atomic Energy Commission

Ames Laboratory
INSTALLATION

Atomic Energy Commission
AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR: Iowa State University of Science and Technology

2. DIRECTOR: Dr. Robert S. Hansen
A. TECHNICAL DIRECTOR: same

3. LOCATION: A. Ames (Nearest City) B. Story (County) C. Iowa (State)

4. P. O. ADDRESS: Ames Laboratory, University Station
A. Ames (City) B. Iowa (State) C. 50010 (Zip Code) D. 515-294-2770 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 420
B. ALL OTHER PERSONNEL (Total): 330

6. FUNDING (Approximate FY 1969 Dollar costs):
A. INTRAMURAL (Total): $ (See Item 9)
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Maintains research programs in the basic sciences, conducts pioneering-type development work and contributes fundamental knowledge basic to the release, effects and utilization of atomic energy and the materials required for atomic energy purposes. The research programs are administered under the following divisions:

Ceramic and Mechanical Engineering (11-02, 14-02)
Chemical Engineering (07-01)
Chemistry (07-02, 07-04, 07-05, 18-08)
Mathematics and Computer (12-01, 09-02)
Metallurgy (11-06)
Physics (20-07, 20-08, 20-12)
Reactor (18-09)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

The laboratory has available a wide range of special equipment for conducting research in the physical sciences. Specialized facilities include a 10 MW research reactor, a 70 MeV electron synchrotron, SDS-910 computers (2), ASI-6050 computer, isotope separator, neutron diffractometer, X-ray diffractometers, electron microprobe X-ray analyzer, electron microscopes, film scanning equipment, beta-ray spectrometer, mass spectrometers, helium cryostats, superconducting magnet, electron beam melter, rolling mill and extrusion press.

9. COMMENT AND PUBLICATION REFERENCES:

1. For a detailed description of research accomplishments in FY 1969, see USAEC Report IS-2100.
2. Laboratory Brochure: Iowa State University Institute for Atomic Research (including the Ames Laboratory of the Atomic Energy Commission).
3. List of Publications, Ames Laboratory, USAEC (annual)

		(Millions)
Item 6.A.	Operating costs	$ 7.9
	Equipment costs	0.8
	Construction costs	0.2
	Total AEC costs	$ 8.9

10. DATE OF REPORT: 21 October 1969

ARGONNE NATIONAL LABORATORY — INSTALLATION

ATOMIC ENERGY COMMISSION — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☒ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: University of Chicago and Argonne Universities Association

2. DIRECTOR: Dr. Robert B. Duffield

A. TECHNICAL DIRECTOR:

3. LOCATION: A. Argonne (Nearest City) B. DuPage (County) C. Illinois (State)

4. P. O. ADDRESS: 9700 South Cass Avenue

A. Argonne (City) B. Illinois (State) C. 60439 (Zip Code) D. 312 739-7711 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 1,028

B. ALL OTHER PERSONNEL (Total): 4,122

6. FUNDING (Approximate FY 1969 Dollar costs):

A. INTRAMURAL (Total): $ (See Item 9)

B. EXTRAMURAL (Total): $ 1.7 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Applied and basic aspects of nuclear research. Applied areas concentrate on development of liquid metal fast breeder reactors whose eventual commercial development will be for generation of electricity. Design studies, component development, reactor operation, theoretical and experimental reactor physics, nuclear safety, nuclear materials and fuels development, and spent fuel processing are included in this work.

Basic research is largely nuclear related in areas of applied mathematics, biology and medicine, chemistry, high energy physics, metallurgy, nuclear physics, and solid state science.

Cosati Codes: 03-02; 04-01, 02; 05-02; 06-01, 02, 03, 04, 05, 06, 13, 18, 19; 07-01, 02, 03, 04, 05; 08-01, 08; 09-01, 02, 04; 10-01, 02, 03; 11-01, 02, 04, 06; 12-01, 02; 14-01; 18-01, 02, 04, 06, 08, 09, 10, 11, 12, 13; 20-02, 07,08,09,12,13.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

12.5 GeV proton synchrotron, 3600 CDC and 360 IBM Computers, research nuclear reactors for general usage and special biological studies, 4 large fast critical zero power reactors, 62 Mw thermal (20 Mwe) sodium cooled fast reactor, 100" spectrograph, hot laboratories for high level activity and specialty use such as transuranium elements, facilities for low level counting such as whole body counting.

9. COMMENT AND PUBLICATION REFERENCES:

Laboratory and divisional annual reports, monthly progress reports on Reactor Development Program; most remaining publications through topical reports bearing the letter designation ANL- _____, or through regular journal outlets specific for the subject matter.

Argonne has an increasing interest in R and D work in the total national picture. Projects are under way involving $1,379,000 within FY 1970 of non-AEC funding. These projects tend to concentrate on environmentally related work.

Argonne National Laboratory maintains a permanent staff of about 550 at the National Reactor Testing Station, Idaho Falls, Idaho.

		(Millions)
Item 6.A.	Operating costs..........	$ 88.4
	Equipment costs..........	10.1
	Construction costs.......	12.1
	Total AEC costs.....	$ 110.6

Cost of Reimbursable Work for Other Federal Agencies...... $0.6

10. DATE OF REPORT: October 22, 1969

Atomic Bomb Casualty Commission
INSTALLATION

Atomic Energy Commission
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: National Academy of Sciences

2. DIRECTOR: Dr. George B. Darling
A. TECHNICAL DIRECTOR: Dr. George B. Darling

3. LOCATION: A. Hiroshima, Japan (Nearest City) B. (County) C. (State)

4. P. O. ADDRESS: Atomic Bomb Casualty Commission, U. S. Marine Corps Air Station

A. FPO Seattle (City) B. Washington (State) C. 98764 (Zip Code) D. (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 46
B. ALL OTHER PERSONNEL (Total): 708

6. FUNDING (Approximate FY 1969 Dollar Costs):
A. INTRAMURAL (Total): $ (See Item 9)
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The ABCC program is a study to investigate the delayed and late effects of radiation in population groups from Hiroshima and Nagasaki who were exposed to the atomic bombing of those cities. There are 7 major components of the study, as follows:

	Codes
Basic radiation estimates	06-06, 06-18, 12-01
Population studies	06-05, 06-06, 12-01
Genetic studies	06-03, 06-06, 06-18, 12-01
Growth and development studies	06-06, 06-16, 06-18, 12-01
Mortality studies	06-05, 06-06, 06-18, 12-01
Morbidity studies	06-05, 06-06, 06-18, 12-01
Specific diseases or disorders	06-05, 06-06, 06-18, 12-01

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

2 X-ray fluorscope systems

IBM 1440 computer

Electron microscope

9. COMMENT AND PUBLICATION REFERENCES:

The principal laboratory and clinic is in Hiroshima. A laboratory and clinic is also operated in Nagasaki in partly leased and partly Government-owned buildings.

The research is similar in both cities and is combined in a unified program which includes (1) a life-span recording of a population sample of approximately 100,000, (2) periodic health examinations of approximately 20,000 of the population sample, and (3) autopsies of deceased members of the population sample.

Annual Reports and Bibliographies of Published Papers:
Clearinghouse for Federal Scientific and Technical Information
Springfield, Virginia 22151

Technical Reports (Government and contractor personnel only) and reprints:
ABCC Office
National Academy of Sciences
2101 Constitution Avenue, N. W.
Washington, D. C. 20418

		(Millions)
Item 6.A.	Operating Costs..........	$3.8
	Equipment Costs..........	0.1
	Construction Costs.......	0.1
	Total AEC Costs........	$4.0

10. DATE OF REPORT:
October 17, 1969

Bettis Atomic Power Laboratory
INSTALLATION

Atomic Energy Commission
AGENCY OR DEPT.

89

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☒ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR: Westinghouse Electric Corporation

2. DIRECTOR: N. A. Beldecos A. TECHNICAL DIRECTOR: Same as Director

3. LOCATION: A. Pittsburgh (Nearest City) B. Allegheny (County) C. Pennsylvania (State)

4. P. O. ADDRESS: P. O. Box 79

A. West Mifflin (City) B. Penna. (State) C. 15122 (Zip Code) D. 412-462-5000 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 1,417
B. ALL OTHER PERSONNEL (Total): 1,985

6. FUNDING (Approximate FY 1969 Dollar costs):
A. INTRAMURAL (Total): $ (See Item 9)
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts engineering, research and development relating to design and operation of reactor plants for Navy submarines, surface ships, and prototype plants (18 09 Reactor Engineering and Operation, 18 10 Reactor Materials, 18 11 Reactor Physics).

Conducts engineering, research and development, and fuel fabrication work for the Light Water Breeder Reactor (LWBR), a civilian reactor plant core having as its objective development of technology in the areas of fuel elements, nuclear physics, and reactor engineering necessary to explore feasibility of breeding potential of the seed and blanket concept in a Light Water Moderated Power Reactor (18 09 Reactor Engineering and Operation, 18 10 Reactor Materials, 18 11 Reactor Physics, 18 12 Reactors - Power).

Tests advanced naval fuels and poison systems in order to develop advanced reactor technology (18 10 Reactor Materials).

Provides operating manuals, test procedures and technical assistance relating to construction, control and regulation of nuclear power plants for Navy submarines and surface ships, prototype plants, and designated civilian power stations (18 05 Nuclear Power Plants).

Conducts research and development relating to reactor safety, shielding, decontamination, and refueling operations (18 06 Radiation Shielding and Protection).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

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8. MAJOR EQUIPMENT:

The Laboratory consists of research laboratory, testing, fuel and fabrication facilities at the Bettis site, near Pittsburgh, Pennsylvania, operating prototype naval nuclear plants at the Naval Reactors Facility located within the National Reactor Testing Station in Idaho and the Expended Core Facility at the Naval Reactors Facility.

Specialized features include facilities for multiple critical experiments, fuel fabricating facilities, large scale engineering test equipment, and a CDC dual 6600 system computer.

9. COMMENT AND PUBLICATION REFERENCES:

Note: Of the personnel listed in Item 5, the following are located at the Naval Reactors Facility, Idaho:

A. R&D Professionals	184
B. All Other Personnel	470

Bettis Atomic Power Laboratory is operated by Westinghouse Electric Corporation for the Atomic Energy Commission, which owns the facilities. Control of the operations is vested in the AEC's Division of Naval Reactors. Any inquiries concerning these facilities should be made to the Division of Naval Reactors.

Due to the classified military nature of the research and development work performed by the Bettis Atomic Power Laboratory, access to this facility or its field activities by persons or organizations not directly involved in laboratory work is not permitted.

		(Millions)
Item 6.A.	Operating Costs.	$65.1
	Equipment Costs.	4.6
	Construction Costs	0.5
	Total AEC Costs	$70.2

10. DATE OF REPORT: November 7, 1969

Brookhaven National Laboratory
INSTALLATION

Atomic Energy Commission
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: Associated Universities, Inc.

2. DIRECTOR: Dr. M. Goldhaber
A. TECHNICAL DIRECTOR: Dr. M. Goldhaber

3. LOCATION: A. Upton (Nearest City) B. Suffolk (County) C. New York (State)

4. P. O. ADDRESS: Associated Universities, Inc. - Brookhaven National Laboratory
A. Upton (City) B. New York (State) C. 11973 (Zip Code) D. 516-924-6262 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 921
B. ALL OTHER PERSONNEL (Total): 2,328

6. FUNDING (Approximate FY 1969 Dollar costs):
A. INTRAMURAL (Total): $ (see Item 9)
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The major function of the Laboratory is a research program covering a wide range of subjects in the physical and biological sciences and in engineering. The activities are broadly described in the following categories:

1. Fundamental studies of atomic nuclei, the particles that constitute them, and the forces involved in their structure.

   20-02, 20-03, 20-10, 20-12

2. Studies of the physical, chemical, and biological effects of nuclear radiation.

   06-01, 06-06, 06-12, 06-16, 06-18, 07-02, 07-04, 07-05, 20-08

3. Research and development directed toward solving the problems of atomic energy development.

   11-06, 18-02, 18-05, 18-07, 18-08, 18-11, 20-13

4. The development of specific devices for use as research tools or in practical applications of atomic energy.

   09-02, 09-03, 18-04, 18-09, 18-13, 20-07

A. ADDITIONAL COSATI CODES: 06-05, 06-14

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

33 GeV Alternating Gradient Synchrotron
30 MeV Tandem Van de Graaff (nearing completion)
3 MeV Van de Graaff
3 MeV Vertical Accelerator
60-inch Cyclotron
High Flux Beam Reactor
Medical Research Reactor
Graphite Research Reactor (in standby)
High Intensity Radiation Development Laboratory
7-foot Bubble Chamber
80-inch Bubble Chamber
31-inch Bubble Chamber
30-inch Bubble Chamber
Hot Laboratory
Critical Assembly Laboratory
Central Scientific Computer Facility
Triple Axis Neutron Spectrometers
Fast and Slow Neutron Choppers
Medical Research Hospital

9. COMMENT AND PUBLICATION REFERENCES:

BNL has the scientific and technical resources to conduct research on many aspects of environmental degradation, including studies on the contamination of living organisms in air, soil and water.

Information on BNL's current research programs and facilities are available in the following documents:

1. BNL Annual Report, July 1, 1969, BNL-50169, AS-23
2. Annual Report, Nuclear Engineering Department, December 31, 1968, BNL-50149, S-71

Both of the above documents are available from Clearinghouse for Federal Scientific and Technical Information, National Bureau of Standards, U. S. Department of Commerce, Springfield, Virginia 22151. Price: Printed Copy $3.00, Microfiche $0.65.

Access to the existing resources must be made through the Brookhaven Office of the U. S. Atomic Energy Commission.

		(Millions)
Item 6.A.	Operating costs	$ 48.7
	Equipment costs	7.2
	Construction costs	18.7
	Total AEC costs	$ 74.6

Cost of Reimbursable Work for Other Federal Agencies . . . $0.4

10. DATE OF REPORT: October 23, 1969

Cambridge Electron Accelerator
INSTALLATION

Atomic Energy Commission
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: * Harvard University

2. DIRECTOR: Dr. Karl Strauch
A. TECHNICAL DIRECTOR: same

3. LOCATION: A. Cambridge *(Nearest City)* B. Middlesex *(County)* C. Mass. *(State)*

4. P. O. ADDRESS: 42 Oxford Street
A. Cambridge *(City)* B. Mass. *(State)* C. 02138 *(Zip Code)* D. 617-868-7600 *(Telephone (Area Code & No.)*

5. PERSONNEL: (As of June 1969)
A. R&D PROFESSIONALS (Total): 57
B. ALL OTHER PERSONNEL (Total): 135

6. FUNDING (Approximate FY 1969 Dollar costs):
A. INTRAMURAL (Total): $ (See Item 9)
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Operation, improvement and development of a 6-GeV electron synchrotron facility. Included in this category are improvement of the accelerator components (Linac, RF, Vacuum, Magnets), and development of tagged photon beams and polarized beams (20-07 Particle Accelerators).

Development of a colliding beam facility to produce very high center mass energies of up to 7 GeV. This is the only colliding beam project in the GeV region currently under construction in the United States (20-07 Particle Accelerators).

Support of an experimental program in particle physics. Includes technical assistance, operation of experimental magnets, targets, vacuum systems and operation of on-line computer equipment (20-08 Particle Physics).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

The laboratory's facilities consist of a 1 - 6 GeV electron accelerator furnishing electron and photon beams as follows:

1. One standard bremsstrahlung beam of 6×10^{11} Q/sec uncollimated
2. One coherent bremsstrahlung beam, polarized, same intensity as above
3. Three external electron beams with an intensity of 4×10^{12} electrons/sec
4. One externally tagged photon beam with an intensity of 10^{6} tagged photons/sec

In addition to the machine itself, major equipment consists of:

1. 100 experimental magnets weighing from 1 ton to 230 tons
2. Two-arm high-energy and high-resolution spectrometer system
3. One-arm high-resolution spectrometer with a pair of 35-ton vertically deflecting momentum-analyzing magnets, and 40-ft elevating detector support frame
4. Hydrogen/deuterium target cooler systems using mechanical refrigerators

9. COMMENT AND PUBLICATION REFERENCES:

The accelerator can deliver intense beams of broad spectrum x-ray and ultra-violet radiation of an intensity unequal elsewhere in the United States.

"The Cambridge Electron Accelerator: A Comprehensive Account" - CEAL-1000

"Cambridge Electron Accelerator" - brochure

"Operation of the Cambridge Electron Accelerator for Fiscal Years 1969, 1970 and 1971" - CEAL-1048

"Semi-Annual Report for the Period January 1 through June 30, 1969" - CEAL-1049

"Fundamental Nuclear Energy Research" - A supplemental report to the Annual Report to Congress for 1968 of the U. S. Atomic Energy Commission, January 1969

		(Millions)
Item 6.A.	Operating costs	$ 3.5
	Equipment costs	0.6
	Construction costs	0.7
	Total AEC costs	$ 4.8

10. DATE OF REPORT: October 1969

* Massachusetts Institute of Technology participates with Harvard University in the operation of the accelerator.

HEALTH AND SAFETY LABORATORY
INSTALLATION

ATOMIC ENERGY COMMISSION
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Dr. John H. Harley
   A. TECHNICAL DIRECTOR: Dr. John H. Harley

3. LOCATION: A. New York (Nearest City) B. New York (County) C. New York (State)

4. P. O. ADDRESS: 376 Hudson Street
   A. New York (City) B. New York (State) C. 10014 (Zip Code) D. 212-989-1000 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 57
   B. ALL OTHER PERSONNEL (Total): 42

6. FUNDING (Approximate FY 1969 Dollar costs):
   A. INTRAMURAL (Total): $ (See Item 9)
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Studies to predict the transport of fission products through the atmosphere, their deposition and movement through the food webs. Studies of human metabolism of natural and fission radioactivity. (18-08 Nuclear Science and Technology - Radioactivity; 07-02 Chemistry - Inorganic - Analyses; 08-03 Earth Sciences and Oceanography - Dynamic Oceanography)

Studies of radiation transport, shielding and dosimetry (18-06 Nuclear Science and Technology - Radiation Shielding and Protection; 06-18 Biological and Medical Sciences - Radiobiology - Dosimetry).

Development of equipment and techniques for measuring radiation dose (06-18 Biological and Medical Sciences - Radiobiology - Dosimetry; 18-04 Nuclear Science and Technology - Nuclear Instrumentation).

Studies of basic physical characteristics of aerosols - development of equipment to sample aerosols and measure their characteristics (04-01 Atmospheric Sciences - Atmospheric Physics - Physical Properties).

Studies to assess and control hazards of radioactive air contaminants in the industrial environment(18-08, 18-04 Nuclear Science and Technology - Radioactivity - Nuclear Instrumentation).

Development of components and systems for sampling,radiation detection and laboratory analysis (09-03 Electronics and Electrical Engineering; 09-02 Electronics and Engineering - Computers).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

96 8. MAJOR EQUIPMENT:

Radiochemistry laboratories include facilities for alpha, beta and gamma counting, NaI and Ge(Li) spectroscopy, liquid scintillation, atomic absorption.

Engineering facilities including machine shop, temperature-humidity testing chambers, specialized photomultiplier tube testing equipment.

Calibration facilities with 250 KeV X-ray machine, cobalt-60/cesium-137 sources.

Computer facility - IBM 360/30 64K, 3 Disc Drives, Paper Tape Reader, Digital Plotter.

High Altitude Test Chamber capable of simulating pressure and temperature to approximately 200,000 ft.

9. COMMENT AND PUBLICATION REFERENCES:

Access to resources only through the U. S. Atomic Energy Commission's Division of Biology and Medicine.

		(Millions)
Item 6.A.	Operating costs	$ 2.1
	Equipment costs	0.1
	Construction costs	0.0
	Total AEC costs	$ 2.2

10. DATE OF REPORT: October 1969

KNOLLS ATOMIC POWER LABORATORY
INSTALLATION

ATOMIC ENERGY COMMISSION
AGENCY OR DEPT.

97

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☒ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR: General Electric Company

2. DIRECTOR: H. E. Stone
   A. TECHNICAL DIRECTOR: H. E. Stone

3. LOCATION: A. Schenectady (Nearest City) B. Schenectady (County) C. New York (State)

4. P. O. ADDRESS: P. O. Box 1072
   A. Schenectady (City) B. New York (State) C. 12301 (Zip Code) D. 518-393-6611 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 852
   B. ALL OTHER PERSONNEL (Total): 1911

6. FUNDING (Approximate FY 1969 Dollar costs):
   A. INTRAMURAL (Total): $ (See Item 9)
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts engineering research and development relating to design and operation of reactor plants for Navy submarines, surface ships, and prototype plants. (18-09 Reactor Engineering and Operations; 18-10 Reactor Materials; 18-11 Reactor Physics)

Operates several prototype naval nuclear propulsion plants. (18-09 Reactor Engineering and Operations; 18-05 Nuclear Power Plants)

Tests advanced nuclear fuels and poison systems in order to develop advanced naval reactor technology. (18-10 Reactor Materials)

Provides operating manuals, test procedures and technical assistance relating to construction, control and regulation of nuclear power plants for Navy submarines and surface ships, prototype plants. (18-05 Nuclear Power Plants)

Conducts research and development relating to reactor safety, shielding, decontamination, and refueling operations. (18-06 Radiation Shielding and Protection; 18-04 Nuclear Instrumentation)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

The Laboratory consists of a research and development laboratory at the Knolls Site, near Schenectady, N. Y.; operating prototype naval nuclear plants at the Kenneth A. Kesselring Site, West Milton, N. Y. and the National Reactor Testing Station in Idaho. Specialized facilities include several critical experiments, large scale engineering test equipment, and a dual CDC 6600 computer system.

9. COMMENT AND PUBLICATION REFERENCES:

Knolls Atomic Power Laboratory is operated by General Electric Company for the Atomic Energy Commission, which owns the facilities. Control of the operations is vested in the AEC's Division of Naval Reactors. Any inquiries concerning these facilities should be made to the Division of Naval Reactors. Due to the classified military nature of the research and development work performed by the Knolls Atomic Power Laboratory, access to this facility or its field activities by persons or organizations not directly involved in laboratory work is not permitted

Ref 3	A. West Milton	B. Saratoga	C. New York
	A. Idaho Falls	B. Butte-Arco	C. Idaho

		(Millions)
Item 6.A.	Operating Costs	$55.1
	Equipment Costs	3.4
	Construction Costs	2.6
	Total AEC Costs	$61.1

10. DATE OF REPORT: November 7, 1969

Lawrence Radiation Laboratory - Berkeley
INSTALLATION

Atomic Energy Commission
AGENCY OR DEPT.

99

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY:
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: University of California

2. DIRECTOR: Dr. E.M. McMillan
A. TECHNICAL DIRECTOR: Dr. E.M. McMillan

3. LOCATION: A. Berkeley (Nearest City) B. Alameda (County) C. Calif. (State)

4. P. O. ADDRESS: Lawrence Radiation Laboratory,
A. Berkeley (City) B. Calif. (State) C. 94720 (Zip Code) D. 415-832-2740 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 1050
B. ALL OTHER PERSONNEL (Total): 2049

6. FUNDING (Approximate FY 1969 Dollar costs):
A. INTRAMURAL (Total): $ (See Item 9)
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts basic research in the areas of high, medium, and low energy physics, mathematics and computer research, chemistry, metallurgy, and biology and medicine. The largest emphasis is in high energy physics.

By COSATI Codes:

06 Biological and Medical Sciences - Studies of the chemical processes which take place in biological systems.(06-01); Radiation biology.(06-18)

07 Chemistry - Chemical Engineering (07-01); Synthesis, properties, and reactions of inorganic compounds (07-02)

09 Electronics and Electrical Engineering - Electrical and electronic devices which are composed of components (09-05)

11 Materials - Ceramic materials (11-02); Microstructure, physical and mechanical properties, corrosion studies, etc. (11-06)

12 Mathematical Sciences - Mathematics research (12-01)

18 Nuclear Science and Technology - Radiation detection devices (18-04); Radioactivity decay, natural and induced radioactivity, interaction of charged particles and radiation with matter. (18-08)

20 Physics - Structure and properties of crystalline forms (20-02); Theory of electrical and magnetic phenomena (20-03); Design and operation of betatrons, cyclotrons, synchrotrons, etc. (20-07); Properties and reactions of elementary particles. Nuclear reactions. (20-08); Properties and actions of plasmas (20-09); Thermodynamic theory (20-13)

A. ADDITIONAL COSATI CODES:

06-03, 07-04, 07-05, 09-03, 18-06, 20-10, 20-12

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

100 8. MAJOR EQUIPMENT:

Bevatron
184" Cyclotron
Heavy Ion Linear Accelerator
88" Cyclotron
CDC 6600 (two)
IBM 7094

9. COMMENT AND PUBLICATION REFERENCES:

Publications available from Federal Clearing House on Science and Technology:

LRL Semi-Annual Reports on Physics
" " " " " Biology-Medicine
LRL Annual Report on Chemistry
" " " " Inorganic Materials Research Division

The Laboratory operates an extensive "Users Group" for High Energy Research. Information regarding the accessability to this program should be directed to the Laboratory Director.

		(Millions)
Item 6.A.	Operating costs	$ 37.5
	Equipment costs	3.3
	Construction costs	2.5
	Total AEC costs	$ 43.3

Costs for Reimbursable Work for Other Federal Agencies . . . $0.8

10. DATE OF REPORT: 10/22/69

LAWRENCE RADIATION LABORATORY - LIVERMORE
INSTALLATION

ATOMIC ENERGY COMMISSION
AGENCY OR DEPT.

101

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: University of California

2. DIRECTOR: Dr. M. M. May
A. TECHNICAL DIRECTOR: Dr. M. M. May

3. LOCATION: A. Livermore (Nearest City) B. Alameda (County) C. California (State)

4. P. O. ADDRESS: Lawrence Radiation Laboratory, P. O. Box 808
A. Livermore (City) B. California (State) C. 94550 (Zip Code) D. 415 447-1100 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 1,767
B. ALL OTHER PERSONNEL (Total): 4,044

6. FUNDING (Approximate FY 1969 Dollar costs):
A. INTRAMURAL (Total): $ (See Item 9)
B. EXTRAMURAL (Total): $ 1.0 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Fundamental and applied research and development related to the nuclear sciences and the use of atomic energy in military and peaceful applications.

Over four-fifths of the Laboratory's resources are directed to develop and test new ideas for nuclear warheads which will keep the nuclear systems of the United States second to none. (15-06)

The Controlled Thermonuclear Research Program at LRL is a broad attack on the problem of confining a hot plasma by means of a magnetic field to achieve the controlled release of power from nuclear fusion. About six percent of the Laboratory's resources are applied to this program. (18-01)

The mission of the Laboratory's Biology and Medicine Program at Livermore is to develop a predictive capability for estimating the possible impact of radiation and radionuclide release upon the biosphere, in particular upon man, from any credible type of nuclear event and to use this capability to develop appropriate counter-measures with the objective of minimizing the radiation burden to man. Approximately three percent of the Laboratory's total resources are applied to this program. (06-06)

About seven percent of the total resources at Livermore are engaged in a program to develop techniques for safe applications of nuclear explosives to various peaceful projects such as development of techniques for large scale nuclear excavation, development of techniques for utilizing nuclear explosives for industrial projects (gas stimulation, gas storage, oil shale recovery and others), and exploration of concepts for scientific experiments using nuclear explosives. (18-03)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

The Laboratory has a wide range of general equipment and specialized facilities to carry on its major functions and activities. This includes an extensive computer complex, linear accelerators, a Cyclograaff system consisting of a combination cyclotron and tandem accelerator, a positive ion accelerator, a Pool Type Reactor, a Van de Graaff generator, and various materials testing machines. The foregoing equipment is utilized for the Laboratory's various missions and is generally not available to outside users.

9. COMMENT AND PUBLICATION REFERENCES:

Publications on all of the Laboratory's unclassified activities are included in the Nuclear Science Abstracts (NSA) and reports are available through the AEC-Division of Technical Information Extension located in Oak Ridge, Tennessee and the Federal Clearing House on Science and Technology.

In addition to the principal site at Livermore, the Laboratory maintains a 10 square mile area about 13 miles east of Livermore for materials testing and high-explosive diagnostic work. Additional testing activities are carried on at the Nevada Test Site, Mercury, Nevada where a permanent staff of about 200 makes up the LRL-Nevada part of the Laboratory.

		(Millions)
Item 6.A.	Operating costs	$117.6
	Equipment costs	6.5
	Construction costs	4.1
	Total AEC costs	$128.2

Costs for Reimbursable Work for Other Federal Agencies . . . $6.0

10. DATE OF REPORT: October 1969

Los Alamos Scientific Laboratory
INSTALLATION

Atomic Energy Commission
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: University of California

2. DIRECTOR: Dr. Norris E. Bradbury
A. TECHNICAL DIRECTOR: Dr. Norris E. Bradbury

3. LOCATION: A. Los Alamos (Nearest City) B. Los Alamos (County) C. New Mexico (State)

4. P. O. ADDRESS: P. O. Box 1663
A. Los Alamos (City) B. New Mexico (State) C. 87544 (Zip Code) D. 505-667-5101 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 1734
B. ALL OTHER PERSONNEL (Total): 2817

6. FUNDING (Approximate FY 1969 Dollar Costs):
A. INTRAMURAL (Total): $ (See Item 9)
B. EXTRAMURAL (Total): $ 0.5 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

In addition to its primary responsibility for research related to the application of nuclear energy to national defense, the Laboratory carries out studies related to nuclear propulsion for rockets, controlled thermonuclear reactions, scientific applications of nuclear explosives, and other civilian uses of nuclear energy. Principal areas of activity are:

Nuclear Weapon Research & Development	15-06
Nuclear Rocket Propulsion Research & Development	21-06
Nuclear Reactors	18-13
Nuclear Physics	20-09
Biochemistry	06-01
Nuclear Physics	20-08
Radiochemistry	07-05
Explosives Research	19-01
Metallurgical Research	11-06

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Laboratories for nuclear physics research including cyclotron, tandem Van de Graaff accelerators, electronic equipment, 800 MeV proton accelerator (Meson Physics Facility) under construction, research reactor.
Laboratories for heavy element chemistry and radiochemical research.
High temperature research reactor.
Laboratory for plasma physics research.
Metallurgical and materials research laboratories including high temperature facilities.
Nuclear critical assembly facilities with remote controls.
Explosive and explosive hydrodynamics research facilities.
Biomedical research laboratory and small animal facilities.
20 MeV pulsed x-ray facility.
Computational facilities including three (3) CDC 6600 computers and one(1) 7600 CDC computer.

9. COMMENT AND PUBLICATION REFERENCES:

The above facilities are normally not available for uses other than those connected with Atomic Energy Commission programs being conducted by the Los Alamos Scientific Laboratory. Many are in security areas and require AEC clearance for access. A "Users Group" program is being developed in connection with the Meson Physics Facility. Requests for information regarding this program should be directed to the Laboratory Director.

Other unclassified sources of information: Laboratory brochures obtainable from:
Public Relations Department
Los Alamos Scientific Laboratory
P. O. Box 1663
Los Alamos, New Mexico 87544

Some of the Laboratory personnel are employed at the Nevada Test Site, Mercury, Nevada, and the Nuclear Rocket Development Station (NRDS), Nevada, in connection with the testing activities there.

		(Millions)
Item 6.A.	Operating Costs........	$ 95.8
	Equipment Costs........	8.6
	Construction Costs.....	6.8
	Total AEC Costs.....	$111.2

Costs for Reimbursable Work for Other Federal Agencies...$3.0

10. DATE OF REPORT:

October 15, 1969

Mound Laboratory — INSTALLATION
Atomic Energy Commission — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: Monsanto Research Corporation

2. DIRECTOR: Ralph L. Neubert
A. TECHNICAL DIRECTOR: Ralph L. Neubert

3. LOCATION: A. Miamisburg (Nearest City) B. Montgomery (County) C. Ohio (State)

4. P. O. ADDRESS: Post Office Box 32
A. Miamisburg (City) B. Ohio (State) C. 45342 (Zip Code) D. 513-866-7444 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 409
B. ALL OTHER PERSONNEL (Total): 1400

6. FUNDING (Approximate FY 1969 Dollar Costs):
A. INTRAMURAL (Total): $ (See Item 9)
B. EXTRAMURAL (Total): $ 0.3 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts research, development and manufacturing of explosive and nuclear devices for the AEC's weapons program (15-06) including quality assurance, nondestructive and destructive testing (14-04). Particular emphasis is placed on developing processes for assembling explosive components (19-01) and the necessary support in such areas as research on chemical explosives (07-03), special adhesives (11-01), ceramics (11-02) and determinations of the physical and chemical properties of these materials (07-04). Substantial research and development, with limited production, of nuclear components in the same areas (07-05, 18-06, 18-07, 18-08, 06-18, and 18-01).

Separates and purifies the stable isotopes of the noble gases and carbon-13 for sale to the free world (18-02) and radioisotopes from thallium through plutonium for AEC projects (07-02, 07-04, 07-05). Recognized world leader in thermal diffusion (20-13) with supporting experimental and theoretical studies (20-10, 20-13).

Designs and fabricates plutonium-238 fueled isotopic heat sources (18-14) supported by radiochemical studies (07-05) nuclear criticality experiments (20-08), studies on materials (11-02, 11-04, 11-06) for use in these heat sources.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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8. MAJOR EQUIPMENT:

Mound Laboratory has a wide range of special facilities and equipment to support AEC programs such as:

1. Secondary Standards Laboratory where reference standards of length, mass environmental and electrical units used are traceable to NBS.
2. Environmental Testing Laboratory to subject parts to shake, rattle, roll, impact, temperature extremes.
3. Destructively testing explosive devices with time sequence measurement to nearest nanosecond.
4. Precision Calorimeters designed and built at Mound capable of measurement from 0.1 microwatt to 1500 watts with an accuracy of 0.02 percent.

9. COMMENT AND PUBLICATION REFERENCES:

Ref: 1. "Mound Laboratory Publications for 1968"
Report No. MLM-CF-69-1-33

2. Mound Laboratory Brochures

Precision Calorimetry

Applying Technical Versatility

Subjects, Radioisotopes, Explosive Devices, Isotope Separation

Technology and Applications Summary

Brief description of each capability and technology.

		(Millions)
Item 6.A.	Operating Costs.........	$25.9
	Equipment Costs.........	3.7
	Construction Costs......	0.5
	Total AEC Costs........	$30.1

Cost of Reimbursable Work for Other Federal Agencies.....$0.3

10. DATE OF REPORT:
October 27, 1969

National Accelerator Laboratory
INSTALLATION

Atomic Energy Commission
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☒ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR: Universities Research Association, Inc.

2. DIRECTOR: Dr. Robert Rathbun Wilson
   A. TECHNICAL DIRECTOR: Dr. Robert Rathun Wilson

3. LOCATION. A. Batavia (Nearest City) B. Kane (County) C. Illinois (State)

4. P. O. ADDRESS: National Accelerator Laboratory, P. O. Box 500
   A. Batavia (City) B. Illinois (State) C. 60510 (Zip Code) D. 312-231-6600 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 113
   B. ALL OTHER PERSONNEL (Total): 235

6. FUNDING (Approximate FY 1969 Dollar costs):
   A. INTRAMURAL (Total): $ (See Item 9)
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Design and construction of 200 BeV proton accelerator, high energy particle research. COSATI Codes 20-07, 20-08

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
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8. MAJOR EQUIPMENT:

When completed, 200 BeV proton accelerator.

9. COMMENT AND PUBLICATION REFERENCES:

This laboratory is under construction. The initial beam from the accelerator will be obtained, according to the present schedule, in mid-1972.

		(Millions)
Item 6.A.	Operating costs	$ 3.5
	Equipment costs	0.9
	Construction costs	10.4
	Total AEC costs	$ 14.8

10. DATE OF REPORT: October 15, 1969

National Reactor Testing Station
INSTALLATION

Atomic Energy Commission
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☒ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR: Idaho Nuclear Corporation

2. DIRECTOR: Charles M. Rice
   A. TECHNICAL DIRECTOR: Dr. James Buckham

3. LOCATION: A. Idaho Falls *(Nearest City)* B. Bonneville *(County)* C. Idaho *(State)*

4. P. O. ADDRESS: P. O. Box 1845
   A. Idaho Falls *(City)* B. Idaho *(State)* C. 83401 *(Zip Code)* D. 208-522-6640 *(Telephone (Area Code & No.)*

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 1,005
   B. ALL OTHER PERSONNEL (Total): 2,001

6. FUNDING (Approximate FY 1969 Dollar Costs):
   A. INTRAMURAL (Total): $ (See Item 9)
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The National Reactor Testing Station was established in 1949 as a place where the U.S. Atomic Energy Commission could build, test, and operate various types of nuclear reactors, allied plants, and equipment with maximum safety. Today, the NRTS is one of the Commission's principal centers for developing peacetime uses of atomic energy. It has the world's largest and most varied collection of reactors: research, testing, power, and propulsion.

The National Reactor Testing Station's broad mission is to develop economic nuclear power by furthering the Commission's reactor development program. To that end, more than 40 reactor facilities have been placed in operation or are under construction or design.

A portion of the work is carried out by employees of other AEC laboratories and is included within description of those laboratories (see, for example, Argonne National Laboratory). In addition, efforts are underway in the following areas:

A. Reactor Safety (18-09 Reactor Engineering & Operations, 18-10 Reactor Materials, 18-11 Reactor Physics, 13-12 Safety Engineering, 20-04 Fluid Dynamics & Fluid Mechanics, 18-05 Nuclear Power Plants, 14-04 Reliability).

B. Nuclear Reactor Fuel Processing & Waste Disposal (18-07 Radioactive Wastes & Fission Products, 07-01 Chemical Engineering, 07-05 Radiation & Radiochemistry, 11-06 Metallurgy and Metallography, 18-11 Fuel Burn-up).

C. Nuclear Physics (20-02 Crystallography, 07-04 Neutron Diffraction Analyses, 18-11 Reactor Physics & Reactor Theory, 20-08 Resonance Absorption, 18-11 Neutron Transport Theory, 20-08 Neutron Scattering & Neutron Cross Sections).

D. Radiation Environmental (06-18 Radiobiology, 07-05 Radio & Radiation Chemistry, 18-08 Radioactivity, 08-08 Hydrology and Limnology).

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
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8. MAJOR EQUIPMENT:

Reactors: MTR; ATR; ETR; PBF; FRAN; LOFT; SPERTs I, II, III, IV; EBOR, EOCR, THRITS

Critical Facilities: ATRC: ETRC: ARMF I & II: CRCE

Idaho Chemical Processing Plant for Nuclear Fuels
Large Computer Facility Equipped with IBM 360-75 and Other Units
Reactor Training Facility
Electronic Equipment for Decay Scheme Determinations
Calcined Waste Facility
Neutron Diffraction Equipment
Neutron Spectrometers
Beta-ray Spectrometers
Whole Body Counting and Internal Dose Equipment
Nuclear Environmental Surveillance Equipment
Numerous Hot Cells of Sizes Varying from Small to Giant Sizes
Analog Computers 360-75 and PDP 8 and 9's
Ecology Study Chambers
Metallurgical Research Facilities
Initial Engineering Test Facility
Gamma Irradiation Facility
High Pressure Neutron Diffraction Equipment

NOTE: Refer to report for Bettis Atomic Power Laboratory, Item 8, for note on naval nuclear plants at NRTS.

9. COMMENT AND PUBLICATION REFERENCES:

The INC Library at NRTS should be contacted for information on specific topics. Typical reports released in July 1969 include:

IN-1130	Annual Progress Report Gamma-Ray Spectrometry--Cline & Heath
IN-1158	Uranium Recovery from Aluminum Alloyed Fuel at ICPP
IN-1291	Safety Study of Fuel Element Failure Propagation Loop in ETR--deBoisblanc, et al
IN-1308	The MTR-25 KeV Neutron Beam--Howes, et al
IDO-17292	Fission Product Release Analysis--Baston, et al
IDO-17300	Pressure Responses in PWR Containment--Slaughterbeck

		(Millions)
Item 6.A.	Operating Costs	$45.0*
	Equipment Costs	1.5**
	Construction Costs	3.2**
	Total AEC Costs	$49.7

Costs for Reimbursable Work for Other Federal Agencies....$0.2

*Includes $10.3 million for test irradiations costs not distributed to user contractors.

**Includes Phillips Petroleum Co. costs.

10. DATE OF REPORT:
October 1969

NUCLEAR ROCKET DEVELOPMENT STATION
INSTALLATION

AEC
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: John P. Jewett
A. TECHNICAL DIRECTOR: John P. Jewett

3. LOCATION: A. Las Vegas (Nearest City) B. Nye (County) C. Nevada (State)

4. P. O. ADDRESS: Nuclear Rocket Development Station P.O. Box 1
A. Jackass Flats (City) B. Nevada (State) C. 89023 (Zip Code) D. 702-986-5721 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 418*
B. ALL OTHER PERSONNEL (Total): 491

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 16,673,000*
B. EXTRAMURAL (Total): $

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

*The Nuclear Rocket Development Station, funded jointly by NASA and the Atomic Energy Commission, is the National site for conducting full-scale ground tests of nuclear reactors, engines and, eventually, complete flight stages as part of the Government's program to develop nuclear rockets for space flight use. This site, remote from populous areas, is arranged with suitable separation distances between test and support facilities. Remote control of tests and protection from high radiation levels and blast are provided at the test facilities.

Technical functions performed in support of testing activities include assembly, remote disassembly and examination of the reactors and engines; radiation services involving dosimetry, instrumentation, air sampling, decontamination, laboratory analysis, and storage and disposal of radioactive materials; storage, transfer and sampling of pressurants and propellants; non-destructive testing, including radiography; calibration of valves and other components to flow rates up to 780#/sec. of GN_2 and equivalent flow of other gases; and testing of components in cryogenic environment including use of LH_2 at flow rates up to 100#/sec.

06-18, 20; 09-02, 03; 13-13; 18-04, 06, 07, 08, 09, 10, 11; 10-03.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES
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8. MAJOR EQUIPMENT:

Test Cell "C" (Capability for testing nuclear reactors in up-firing position; 1,100,000 gallons LH_2 storage capacity; remotely located control room building).

Engine Test Stand #1 (Capability for testing nuclear engines in down-firing position in simulated space environment; underground adjacent control room).

Reactor Maintenance, Assembly, and Disassembly Building (Unshielded assembly bay; shielded disassembly bay and several hot cells; remote handling capability in disassembly bay and hot cells).

Engine Maintenance, Assembly, and Disassembly Building (Similar to Reactor Building but larger).

Test Cell "A" (used to test small nuclear reactors; mothballed)

Cryogenic Evaluation Laboratory

Radiographic Laboratory

Radioactive Material Storage Facility

Radiation Laboratory

9. COMMENT AND PUBLICATION REFERENCES:

Nuclear Propulsion for Space, February 1968
The Nuclear Rocket, AEC Division of Technical Information, Oark Ridge, Tennessee
The Nuclear Rocket Program
Station Users Handbook, April 1964
Reactor Test Facility Description and Safety Review, Los Alamos Scientific Laboratory, Los Alamas, New Mexico, September 1967.

*Although this establishment is not subsidiary to any particular Federal R&D establishment, it does service several AEC and NASA contractor operations. It is jointly operated by AEC and NASA, although the land and many of the facilities are owned by AEC, under the management of a joint AEC-NASA office called the Space Nuclear Propulsion Office--SNPO. Thus, access to the facility is neither a NASA nor an AEC prerogative, but rather a joint responsibility exercised through the SNPO. Of the 909 employees shown in Item 5, about 50 are Federal employees, some AEC, some NASA. The rest are employees of various contractors to SNPO, some funded by AEC, some by NASA. The funding figure of $16,673,000 includes both AEC and NASA money. Although general site support for testing activities and supervision of construction is rendered by SNPO-Nevada, managed by John Jewett, responsibility for actual testing and evaluation efforts at Jackass Flats resides with the contractor conducting the activity.

10. DATE OF REPORT: March 1970

Oak Ridge Associated Universities
INSTALLATION

Atomic Energy Commission
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR: Oak Ridge Associated Universities

2. DIRECTOR: William G. Pollard
A. TECHNICAL DIRECTOR: Gould A. Andrews

3. LOCATION: A. Oak Ridge (Nearest City) B. Anderson (County) C. Tennessee (State)

4. P. O. ADDRESS: P. O. Box 117
A. Oak Ridge (City) B. Tenn. (State) C. 37830 (Zip Code) D. 615 483-8411 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 70
B. ALL OTHER PERSONNEL (Total): 73

6. FUNDING (Approximate FY 1969 Dollar costs):
A. INTRAMURAL (Total): $ (See Item 9)
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The ORAU Medical Division conducts an interrelated program in nuclear medicine which includes clinical and preclinical research, medical physics, and the training of biomedical personnel. Major research objectives are: 1) to delineate mechanisms of radiation injury, especially in the human being, and to devise improved methods of treatment for accidental radiation exposure; 2) to originate or improve techniques for the use of radiation and radioisotopes in the diagnosis and treatment of disease, especially cancer; and 3) to pursue selected basic studies, related particularly to cancer and radiobiology.

Radiosensitivity in man (06-18 Biological and Medical Sciences - Radiobiology.)
Total-body irradiation for chronic leukemia, lymphomas, and related disorders (06-18 Biological and Medical Sciences - Radiobiology.)
Radiopharmaceutical development (06-15 Biological and Medical Sciences - Pharmacology.)
Lipid metabolism (06-01 Biological and Medical Sciences - Biochemistry.)
Infection after irradiation (06-13 Biological and Medical Sciences - Microbiology.)
Theoretical and experimental studies in metabolism and distribution of nuclides (06-03 Biological and Medical Sciences - Biology.)
Cytogenetics - induced abnormalities (06-03 Biological and Medical Sciences - Biology.)
Blood cytokinetic studies (06-03 Biological and Medical Sciences - Biology.)
Immunologic studies in radiation (06-18 Biological and Medical Sciences - Radiobiology.)
Immunology of chimerism, especially natural chimerism of the marmoset (06-03 Biological and Medical Sciences - Biology.)
Ultrastructural anatomy in neoplasia (06-03 Biological and Medical Sciences - Biology.)
A. ADDITIONAL COSATI CODES: / Computer technology in biomedical research (06-02 Biological and Medical Sciences - Bioengineering.)
/

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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8. MAJOR EQUIPMENT:

The Division operates a 26-bed research hospital, devoted entirely to clinical research, and has recently completed a marmoset research center which provides animal-care and experimental facilities for a colony of 400 primates. Specialized facilities available within this complex include:

Medium- (1.5 R/minute) and low-level (1.5 R/hour) total-body irradiators.

Teletherapy machines.

High-, medium-, and low-level radiation counters.

Linear scanner.

Biochemical assay equipment (chromatography, spectrophotometry, ultracentrifuge, beta liquid scintillation counters.)

Laminar-flow sterile patient-care facility.

Electron microscope.

IBM-1800 computer.

9. COMMENT AND PUBLICATION REFERENCES:

The Medical Division publishes an annual research report covering its program activities and also conducts an annual symposium on topics in nuclear medicine whose proceedings are published.

Ref: 1. 1968 Research Report, Medical Division, Oak Ridge Associated Universities, for the year ending December 31, 1968. 317 pp. ORAU-107.

2. Radioisotopes in Medicine: In Vitro Studies. Proceedings of a symposium held at the Oak Ridge Associated Universities, November 13-16, 1967, R. L. Hayes, F. A. Goswitz, and B. E. P. Murphy eds. USAEC Symposium Series No. 13, Conf-671111, June 1968. 753 pp.

		(Millions)
Item 6.A.	Operating costs	$ 5.8*
	Equipment costs	0.4
	Construction costs	0.1
	Total AEC costs	$ 6.3

Costs for Reimbursable Work for Other Federal Agencies . . . $0.7

*Includes costs for AEC fellowship programs.

10. DATE OF REPORT: October 1969

OAK RIDGE NATIONAL LABORATORY
INSTALLATION

ATOMIC ENERGY COMMISSION
AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: Union Carbide Corporation - Nuclear Division

2. DIRECTOR: Dr. A. M. Weinberg
A. TECHNICAL DIRECTOR: Dr. A. M. Weinberg

3. LOCATION: A. Oak Ridge (Nearest City) B. Roane (County) C. Tennessee (State)

4. P. O. ADDRESS: Oak Ridge National Laboratory, Post Office Box X

A. Oak Ridge (City) B. Tennessee (State) C. 37830 (Zip Code) D. 615-483-8611 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 1,443
B. ALL OTHER PERSONNEL (Total): 3,606

6. FUNDING (Approximate FY 1969 Dollar Costs):
A. INTRAMURAL (Total): $ (See Item 9)
B. EXTRAMURAL (Total): $ 2.8 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Civilian Nuclear Power Reactors (18-05; 18-09; 18-10; 18-11; 18-12; 05-02; Nuclear Power Plants - Engineering - Materials - Physics - Information Dissemination)
Space Nuclear Propulsion Systems (21-06 Nuclear Propulsion - Materials)
Space Electric Power Development (18-14 SNAP Technology - Shielding - Fuels - Materials)
Terrestrial Electric Power Development (18-14 SNAP Technology - Fuel)
General Reactor Technology (18-06; 18-09; 18-10; 18-11; 18-12; 05-02; Reactors - Shielding - Engineering - Fuels - Materials - Physics - Information Dissemination)
Nuclear Safety (18-06; 18-07; 18-09; 18-10; 18-11; 18-12; 18-13; Reactor Safety - Shielding - Radioactive Wastes - Engineering - Materials - Physics)
Nuclear Chem. Res. (07-01; 07-02; 07-03; 07-04; 07-05; 18-02; 18-08; Nuclear Chem. - Engr. - Inorganic - Organic - Physical - Radiation - Spec. Isotopes - Systems - Methods)
Metallurgy and Mat'ls Res. (11-02; 11-06; 18-10; 20-02; 20-11; 20-12; Ceramics - Prop. of Metals and Alloys - Crystal Physics - Solid Mechanics - Solid State Physics)
Thermonuclear Research (18-01; 07-04; 20-09; Thermonuclear - Fusion Reactors Development - Atomic and Molecular Physics - Plasma Physics)
Physics Research (20-06; 20-07; 20-08; Physics - Spectroscopy - Accelerators - Cyclotrons - Particle Research - Stable and Heavy Nuclides)
Mathematics and Computer Research (09-02; 12-01; Computers - Application of Computers and Peripheral Equipment - Programming Research; Mathematics and Statistics Research)
Biology and Medicine (06-01; 06-02; 06-03; 06-04; 06-05; 06-06; 06-12; 06-13; 06-16; 06-18; 15-06; Biochem. - Bioengr. - Biology Bionics - Clinical Microbiology and Biochem. - Ecology - Medical Equip. - Microbiology - Physiology - Radiobiology - Civil Defense)
Isotopes Research (18-02 Separation - Industrial and Medical Applications)
Civilian Application of Nuclear Explosives (18-03 Plowshare)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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8. MAJOR EQUIPMENT:

The Laboratory's activities cover various fields of science and technology. In addition to the normal laboratories and equipment numerous specialized facilities and equipment are available.

1. High Flux Isotope Reactor
2. Oak Ridge Research Reactor
3. Bulk Shielding Reactor
4. Health Physics Reactor
5. Tower Shielding Facility - facility for development of shield technology
6. Hot Cell Facilities - several facilities for post-irradiation examinations
7. Accelerators - 3 MV Van de Graaff Accelerator, 5.5 MV Van de Graaff Accelerator, 7.5 MV Tandem Van de Graaff Accelerator, 250 KV Cockcroft-Walton Accelerator, Oak Ridge Electron Linear Accelerator
8. Cyclotrons - 86-in. Cyclotron and Oak Ridge Isochronous Cyclotron
9. Stable and Radioisotope Separation and Processing Facilities
10. Computer Facilities - CDC - 1604-A and 160A, IBM, 360/75 and 360/91
11. Special Chemical Processing Facilities - Transuranium Facilities, Chemical Processing Pilot Plant
12. Large AEC Oak Ridge Land Reservation available for Ecology
13. Other Laboratory Facilities and Equipment - Special Fabrication and Inspection Equipment, Analytical Laboratories, Biological Facilities, Metallurgical Laboratories

9. COMMENT AND PUBLICATION REFERENCES:

1. Bibliography of Publications, Reports, and Papers from Oak Ridge National Laboratory - ORNL - 3300 - Volume 8
2. Laboratory Brochures
3. Oak Ridge National Laboratory Annual Report
4. Oak Ridge National Laboratory (Quarterly) Review
5. Oak Ridge National Laboratory (Weekly) News
6. 16mm Color Motion Picture available for loan
7. 35mm Color Slides available for loan
8. Journals and Handbooks such as Nuclear Safety Journal, Nuclear Data Journal, Isotopes and Radiation Technology Journal, Radiation Shielding Handbook

		(Millions)
Item 6.A.	Operating Costs.............	$84.3
	Equipment Costs.............	12.4
	Construction Costs..........	2.7
	Total AEC Costs...........	$99.4

Costs for Reimbursable Work for Other Federal Agencies......$11.5

10. DATE OF REPORT: October 20, 1969

Pacific Northwest Laboratory
INSTALLATION

Atomic Energy Commission
AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: Battelle Memorial Institute, Pacific Northwest Laboratories Division

2. DIRECTOR: Dr. Fred W. Albaugh
A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Richland (Nearest City) B. Benton (County) C. Washington (State)

4. P. O. ADDRESS: Battelle Boulevard
A. Richland (City) B. Washington (State) C. 99352 (Zip Code) D. 509-946-2121 509-942-1111 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 1200
B. ALL OTHER PERSONNEL (Total): 1600

6. FUNDING (Approximate FY 1969 Dollar costs):
A. INTRAMURAL (Total): $ (See Item 9)
B. EXTRAMURAL (Total): $ 5.9 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Very broad capabilities exist in almost all facets of nuclear and nuclear-related technology. This ranges from basic research on a bench scale to pilot plant and reactor design and operation. Largest single current effort is in Liquid Metal Fast Breeder Reactor technology. (18--02,04,06,07,08,09,10,13 Nuclear Science and Technology--Isotopes, Nuclear Instrumentation, Radiation Shielding and Protection, Radioactive Wastes and Fission Products, Radioactivity, Reactor Materials, Reactor Physics, Reactors, non-power).

Research is conducted on many aspects of the environmental and life sciences. (02-02, 03,05 Agriculture--Agricultural Economics, Agricultural Engineering, Animal Husbandry. 04-01, 02 Atmospheric Sciences--Atmospheric Physics, Meteorology. 06--01,02,03,06,08, 18,20 Biological and Medical Sciences--Biochemistry, Bioengineering, Biology, Environmental Biology, Food, Radiobiology, Toxicology. 08--01,03,07,08,10 Earth Sciences and Oceanography--Biological Oceanography, Dynamic Oceanography, Geology and Mineralogy, Hydrology and Limnology, Physical Oceanography.)

Additional Cosati Codes:

07--01,02,04,05 Chemistry--Chemical Engineering, Inorganic Chemistry, Physical Chemistry, Radio and Radiation Chemistry. 09--02,03,05 Electronics and Electrical Engineering--Computers, Electronic and Electrical Engineering, Subsystems. 11--02,04,06,09 Materials--Ceramics, Refractories and Glasses; Composite Materials, Metallurgy and Metallography, Plastics. 12--01 Mathematical Sciences--Mathematics and Statistics. 19--01 Ordnance--Ammunition, Explosives, and Pyrotechnics. 20--01,02,03,04,05,06,08,10,11,12,13 Physics--Acoustics, Crystallography, Electricity and Magnetism, Fluid Mechanics, Masers and Lasers, Optics, Particle Physics, Quantum Theory, Solid Mechanics, Solid State Physics, Thermodynamics.

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Test Reactors: high temperature (to 1000°C) lattice test reactor as well as other zero power facilities.

Pilot Plant: nuclear waste solidification pilot plant for conversion of highly radioactive liquids to solids.

Ecology Reserve: 120 sq. mile arid lands ecology preserve, varying in elevation from 500 to 3500 ft.

Irradiation Facilities: Several radiation sources and facilities include radioisotope, X-ray and accelerators. Largest is 620,000 Curie Co^{60} irradiation facility.

Hybrid Computer Lab: Combines several analog and digital computers.

Ultra Low Level Radiochem: counting equipment capable of detecting trace elements to hundredths of a part per billion.

9. COMMENT AND PUBLICATION REFERENCES:

The Pacific Northwest Laboratory is engaged in basic and applied research as well as developmental and application efforts.

Annual reports to the USAEC are available from the AEC's Division of Technical Information.

Laboratory Brochures: Battelle-Northwest Research Capabilities and various other brochures, reports and articles available on request.

		(Millions)
Item 6.A.	Operating costs	$ 42.0
	Equipment costs	5.0
	Construction costs	0.9
	Total AEC costs	$ 47.9

Cost of Reimbursable Work for Other Federal Agencies . . . $0.6

10. DATE OF REPORT: October, 1969

PLASMA PHYSICS LABORATORY
INSTALLATION

ATOMIC ENERGY COMMISSION
AGENCY OR DEPT.

119

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☒ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR: Princeton University

2. DIRECTOR: Dr. Melvin Gottlieb
   A. TECHNICAL DIRECTOR: Dr. Melvin Gottlieb

3. LOCATION: A. Princeton (Nearest City) B. Middlesex (County) C. New Jersey (State)

4. P. O. ADDRESS: Plasma Physics Laboratory, AEC, P. O. Box 451
   A. Princeton (City) B. N. J. (State) C. 08540 (Zip Code) D. 609 452-5600 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 119
   B. ALL OTHER PERSONNEL (Total): 257

6. FUNDING (Approximate FY 1969 Dollar costs):
   A. INTRAMURAL (Total): $ (See Item 9)
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts research involving the theory, design, construction and operation of devices for producing controlled thermonuclear fusion reactions (18-01 Fusion Devices).

Conducts theoretical and experimental research on the properties of plasmas necessary to achieve the basic scientific understanding required for above objectives. (20-09 Physics - Plasma Physics).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

120 **8. MAJOR EQUIPMENT:**

The Laboratory has a wide range of specialized equipment and facilities for plasma production and diagnostics.

Model C Stellarator
Spherator
Etude Stellarator
Stellarator Control Console and Equipment
Q-3 Cesium Plasma Device
Q-1 Cesium Plasma Device
L-2 Linear Plasma Containment Device
L-4 Linear Plasma Containment Device

Extensive engineering facilities for production of high magnetic fields, superconducting systems, ultra high vacuum systems, and very high power radiofrequency system.

9. COMMENT AND PUBLICATION REFERENCES:

The Plasma Physics Laboratory has published numerous reports on its experimental and theoretical activities. The Laboratory's activities are summarized in annual reports under USAEC contract AT(30-1)-1238:

Reference:	MATT Q-26	Annual Report for 1968
	MATT Q-25	Annual Report for 1967
	MATT Q-24	Annual Report for 1966

		(Millions)
Item 6.A.	Operating costs	$ 7.4
	Equipment costs	0.2
	Construction costs	0.2
	Total AEC costs	$ 7.8

10. DATE OF REPORT: October 1969

Princeton-Pennsylvania Accelerator Laboratory
INSTALLATION

Atomic Energy Commission
AGENCY OR DEPT.

121

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR: * Princeton University

2. DIRECTOR: Dr. Milton White
A. TECHNICAL DIRECTOR: Dr. Milton White

3. LOCATION: A. Princeton (Nearest City) B. Middlesex (County) C. New Jersey (State)

4. P. O. ADDRESS: P. O. Box 682
A. Princeton (City) B. New Jersey (State) C. 08540 (Zip Code) D. 609-452-5330 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 56
B. ALL OTHER PERSONNEL (Total): 212

6. FUNDING (Approximate FY 1969 Dollar Costs):
A. INTRAMURAL (Total): $ (See Item 9)
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Princeton-Pennsylvania Accelerator Laboratory is engaged in the study of elementary particles and nuclear structure. A 3-billion electron volt proton synchrotron, is being used by scientists from Princeton, the University of Pennsylvania, and other institutions to study the properties of π, K and other elementary particles. The collective behavior of nucleons in nuclei is being examined through the interaction of high energy protons and mesons with complex nuclei.

(20-08 Physics - Particle Physics)

Design and operation of betatrons, cyclotrons, and synchrotrons, (20-07 Physics - Particle Accelerators)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

The Laboratory consists of 3-BeV accelerator, large crane covered target areas, setup laboratories, shops, offices, library, seminar rooms, and computing facilities.

Also available are high kilowatt power supplies, numerous quadrupole and dipole magnets, and portable shielding.

9. COMMENT AND PUBLICATION REFERENCES:

Publications resulting from Princeton-Pennsylvania Accelerator experimentation appear in scientific periodicals. Typical examples follow:

Measurement of the Relative Rate K^{+}_{e2}/K^{+}_{u2} (R. Macek, A. K. Mann, W. K. McFarlane, J. B. Roberts, K. W. Rothe, C. H. West, L. B. Auerbach) Phys. Rev. Lett, 22, 32 (1969)

Associated Production by 1.7 BeV/c π^{+} on Proton (Y. L. Pan, F. Forman, W. Ko, V. Hagopian) APS Bull. 14, 39 (1969)

Differential Cross Section for $n+p \rightarrow d+\pi^{o}$ - A Test of Charge Independence (I. S. Hammerman, D. F. Bartlett, C. E. Friedberg, K. Goulianos, D. P. Hutchison) APS Bull. 14, 76 (1969)

Differential Cross Section of $n+p \rightarrow d+y$ (C. E. Friedberg, D. F. Bartlett, K. Goulianos, I. S. Hammerman, D. P. Hutchison) APS Bull. 14, 76 (1969)

Measurement of K^{o}_{1} Lifetime (D. I. Lowenstein, C. D. Buchanan, I. D. Goldblatt, K. Lande, J. Niederer) APS Bull. 14, 92 (1969)

		(Million)
Item 6.A.	Operating Costs........	$5.0
	Equipment Costs........	0.4
	Construction Costs.....	1.1
	Total AEC Costs........	$6.5

* University of Pennsylvania participates with Princeton University in the operation of the accelerator.

10. DATE OF REPORT:

October, 1969

Sandia Laboratory
INSTALLATION

Atomic Energy Commission
AGENCY OR DEPT.

123

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR: Sandia Corporation

2. DIRECTOR: J. A. Hornbeck
A. TECHNICAL DIRECTOR: J. A. Hornbeck

3. LOCATION: A. Albuquerque (Nearest City) B. Bernalillo (County) C. New Mexico (State)

4. P. O. ADDRESS: P. O. Box 5800
A. Albuquerque (City) B. New Mexico (State) C. 87115 (Zip Code) D. 505-264-8211 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 2330
B. ALL OTHER PERSONNEL (Total): 5794

6. FUNDING (Approximate FY 1969 Dollar Costs):
A. INTRAMURAL (Total): $ (See Item 9)
B. EXTRAMURAL (Total): $ 15.2 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Sandia Laboratory is the nuclear ordnance engineering laboratory for the Atomic Energy Commission and carries out work covered by the following COSATI codes: 07-Chemistry (04-Physical Chemistry, 05-Radiation Chemistry); 08-Earth Sciences & Oceanography (11-Seismology, 13-Soil Mechanics); 09-Electronics & Electrical Engineering (01-Components, 04-Information Theory, 05-Subsystems, 06-Telemetry); 10-Energy Conversion (01-Conversion Techniques, 02-Power Sources, 03-Energy Storage); 11-Materials (02-Ceramics, Refractories, Glasses, 04-Composite Materials, 06-Metallurgy and Metallography, 09-Plastics); 12-01 Mathematical Sciences-Mathematics & Statistics; 13-Mechanical Engineering (06-Ground Transportation Equipment, 07-Hydraulic & Pneumatic Equipment, 08-Industrial Processes, 12-Safety, 13-Structural); 14-Methods & Equipment (02-Laboratories, Test Facilities, & Test Equipment, 04-Reliability); 15-06 Military Sciences-Nuclear Warfare; 16-03 Missile Technology-Missile Warheads & Fuses; 17-Navigation, etc. (01-Acoustic Detection, 10-Seismic Detection); 18-Nuclear Science and Technology (03-Nuclear Explosions, 06-Radiation Shielding & Protection, 14-SNAP Technology); 19-Ordnance (01-Ammunition, 04-Explosions, 05-Fire Control); 20-Physics (03-Electricity & Magnetism, 04-Fluid Mechanics, 05-Masers and Lasers, 06-Optics, 08-Particle Physics, 09-Plasma Physics, 11-Solid Mechanics, 12-Solid State Physics, 13-Thermodynamics, 14-Wave Propagation); 22-02 Space Technology - Spacecraft.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Sandia Pulsed Reactor, Sandia Engineering Reactor Facility, Gamma-Ray Irradiation Facility, Centrifuges (including largest in the U.S.), Drop Towers, Rocket Sled Tracks, Air Gun, Radiant Heat Facility, Altitude and Humidity Chamber, Acoustic Chamber, Sinusoidal and Complex Wave Shakers, 155-mm Guns, Instrumented Test Ranges (Tonopah, Nevada), Machine Shop, High Power Laser Facility, Carbon Processing Facility, Plastic Molding Facility, Printed Circuit Laboratory, Holographic Laboratory (under construction), High Enthalpy Arc Tunnel (Plasma Jet), Wind Tunnels (trisonic and hypersonic), Arc Driven Shock Tube, 160 KW Arc Heater, Heavy Ion Accelerator (under construction), Van de Graaff Accelerator, Statics Test Laboratory.

9. COMMENT AND PUBLICATION REFERENCES:

SC-R-68-1717, Index to Sandia Corporation Publicly Released Reports, 1963-1967 (Includes reference to several thousand publicly released Sandia documents.)
Environmental Test Facilities

SC-RR-67-438, The Sandia Corporation Radiant Heat Facility

SC-RR-66-609, Calibration of the Sandia Corporation 12-Inch Trisonic Wind Tunnel

Fundamental and Applied Research at Sandia Laboratories

SC-R-67-1208, ACCEL: Automated Circuit Card Etching Layout
SC-TM-68-419, "ACCEL" Graphic System
SC-RR-68-592, An Improved Model of the Vacuum Probe

		(Millions)
Item 6.A.	Operating Costs......	$178.2
	Equipment Costs......	19.3
	Construction Costs...	1.6
	Total AEC Costs	$199.1

Costs of Reimbursable Work for Other Federal Agencies....$54.1

Other Sites:
Livermore Laboratories, Livermore, California
Tonopah Test Range, Tonopah, Nevada

10. DATE OF REPORT:
10/27/69

Savannah River Laboratory
INSTALLATION

Atomic Energy Commission
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR: E. I. du Pont de Nemours & Company, Incorporated

2. DIRECTOR: C. H. Ice
A. TECHNICAL DIRECTOR: C. H. Ice

3. LOCATION: A. Aiken *(Nearest City)* B. Aiken *(County)* C. S.C. *(State)*

4. P. O. ADDRESS: Savannah River Laboratory
A. Aiken *(City)* B. S.C. *(State)* C. 29801 *(Zip Code)* D. 803-649-6211 *(Telephone (Area Code & No.)*

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 328
B. ALL OTHER PERSONNEL (Total): 665

6. FUNDING (Approximate FY 1969 Dollar Costs):
A. INTRAMURAL (Total): $ (See Item 9)
B. EXTRAMURAL (Total): $ 0.1 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts research and development in support of present and potential future products of the Savannah River Plant, a unique complex which also includes five heavy water-moderated and heavy water-cooled reactors, two chemical separations areas, a heavy water extraction plant, several test reactors and uranium fuel processing facilities. Nuclear science and technology is the major field of work (18-02 Isotopes, 18-04 Nuclear Instruments, 18-06 Radiation Shielding, 18-07 Radioactive Wastes, 18-09 Reactor Engineering, 18-10 Reactor Materials, 18-11 Reactor Physics, 18-14 SNAP [Isotopic] Technology).

In support or in conjunction with the above major field, the Savannah River Laboratory conducts research and development in the following other fields:

06-06	Environmental Biology & Ecology related to radioactive wastes
06-18	Radiobiology, including Health Physics and dosimetry
07-01	Chemical Engineering of unit operations and radiochemical manufacturing operations
07-04	Physical Chemistry, including a wide range of analytical techniques
07-05	Radiation Chemistry, effects on filters and resin beds
08-08	Hydrology and Limnology related to storage of radioactive wastes and the potential of waste leakage to the ground water
09-02	Computers, the application of large computers in physics engineering and business fields

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

The SRL has a very extensive collection of modern instruments and research facilities applicable to nuclear science as applied to reactor materials, reactor physics, and the chemical separation of radioactive isotopes and waste products

Special Equipment

High Level Caves
Experimental D_2O moderated reactors

9. COMMENT AND PUBLICATION REFERENCES:

Savannah River Laboratory Facilities for Research and Development. E. I. du Pont de Nemours & Company, Savannah River Laboratory, Aiken, S. C. (April 1969)

		(Millions)
Item 6.A.	Operating Costs...........	$18.5
	Equipment Costs...........	1.8
	Construction Costs........	0.5
	Total AEC Costs.........	$20.8

Costs for Reimbursable Work for Other Federal Agencies.....$0.3

10. DATE OF REPORT:
October 1969

Stanford Linear Accelerator Center
INSTALLATION

Atomic Energy Commission
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☒ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR: Leland Stanford, Jr. University

2. DIRECTOR: Dr. W.K.H. Panofsky
   A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Menlo Park (Nearest City) B. San Mateo (County) C. California (State)

4. P. O. ADDRESS: P. O. Box 4349
   A. Stanford (City) B. Calif. (State) C. 94305 (Zip Code) D. 415-854-3300 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 260
   B. ALL OTHER PERSONNEL (Total): 1163

6. FUNDING (Approximate FY 1969 Dollar costs):
   A. INTRAMURAL (Total): $ (See Item 9)
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts basic research in the area of high energy physics.
20.07 Particle Accelerators

20.08 Particle Physics

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

A. 2-mile linear electron accelerator

B. Major items of research equipment:

1.6, 8 and 20 GEV spectrometers
40 and 82-inch hydrogen bubble chambers
2-meter streamer chamber
54-inch spark chamber magnet
72D36 and 100D40 research magnets
5.0 and 5.8 MW power supplies

9. COMMENT AND PUBLICATION REFERENCES:

"The Stanford Two-Mile Accelerator"; R. B. Neal, General Editor; 1169 pages; published by W. A. Benjamin, Inc., New York, 1968. This book gives a detailed account of the design and construction of the accelerator and plant at the Center.

Publications of the Laboratory's activities and reports are available through the AEC-Division of Technical Information Extension located at Oak Ridge, Tennessee and the Federal Clearing House on Science and Technology.

The Laboratory operates an extensive "Users Group" for High Energy Physics. Information regarding the accessability to this program should be directed to the Laboratory Director.

		(Millions)
Item 6.A.	Operating costs	$ 23.6
	Equipment costs	5.8
	Construction costs	1.6
	Total AEC costs	$ 31.0

10. DATE OF REPORT: October 22, 1969

Department of the Justice

SPECIAL TESTING & RESEARCH LABORATORY
INSTALLATION

ATTORNEY GENERAL (JUSTICE)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Frederick M. Garfield
A. TECHNICAL DIRECTOR: John W. Gunn, Jr.

3. LOCATION: A. Washington (Nearest City) B. (County) C. D. C. (State)

4. P. O. ADDRESS: Special Testing & Research Lab., Bureau of Narcotics & Dangerous Drugs
A. Washington (City) B. D.C. (State) C. 20537 (Zip Code) D. 202-963-3478 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 6
B. ALL OTHER PERSONNEL (Total): 1

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 233,051*
B. EXTRAMURAL (Total): $ 0.00

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The overall mission of the Laboratory is to assist the Bureau of Narcotics and Dangerous Drugs in controlling narcotic and dangerous drugs through enforcement and prevention programs (07-03, Chemistry-Organic Chemistry; 06-15, Biological & Medical Sciences-Pharmacology).

The major functions of the laboratory are:

(1) Handle, on a national basis, the identification of new and esoteric materials encountered on the illegal market (07-03, Chemistry-Organic Chemistry; 06-15, Biological & Medical Sciences-Pharmacology);

(2) Develop and disseminate methods of analysis for the new substances to various crime laboratories in the United States and throughout the world (07-03, Chemistry-Organic Chemistry; 14-02, Methods and Equipment-Laboratories);

(3) Handle ballistics examinations for tablets and capsules leading enforcement officials to manufacturers of products thereby showing illegal diversion or theft of pharmaceutical products from the licit market (06-15, Biological & Medical Sciences-Pharmacology);

(4) Assist the Bureau's regional laboratories in developing methodology and solving problems that arise in the analysis of drug evidence (07-03, Chemistry-Organic; 14-02, Methods & Equipment-Laboratories).

The laboratory's major function is to serve as a technical support laboratory, utilizing advanced microscopic, instrumental and chemical techniques.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

The laboratory has a wide range of special equipment and sophisticated instrumentation found in an analytical chemistry laboratory. Major equipment includes:

(1) Gas Chromatographs, (a) Perkin-Elmer Model 900, (b) Packard Model 7400;

(2) Infrared Spectrophotometers, (a) Perkin-Elmer 457, (b) Perkin-Elmer 621;

(3) Ultraviolet Spectrophotometer, Cary Model 14 (presently being acquired);

(4) Fluorescence Spectrophotometer, Perkin-Elmer MPF 2A;

(5) Polarizing Microscopes, (a) one Leitz-Ortholux (complete) 512151-Leitz Orthomat Camera 543060, (b) two Bausch & Lomb monocular polarizing, (c) two Zeiss monocular/binocular polarizing, (d) one Bausch & Lomb-vertical illuminator, monocular polarizing, (e) one Bausch & Lomb-monocular polarizing;

(6) X-Ray Diffraction Spectrophotometer, Norelco (complete), DeBye-Sherer camera 52207.

In fiscal year 1970, the laboratory plans to obtain: (1) Nuclear Magnetic Resonance Spectrophotometer; (2) Mass Spectrometer; (3) X-Ray Fluorescence Equipment.

9. COMMENT AND PUBLICATION REFERENCES:

The Bureau's Regional Laboratories are at the following locations:

1. 90 Church Street, New York, New York 10007
2. 433 West Van Buren Street, Chicago, Illinois 60607
3. 1114 Commerce Street, Dallas, Texas 65202
4. 450 Golden Gate Avenue, Box 36075, Room 8450, San Francisco, California 94102

The resources of this laboratory and the Regional laboratories are limited to duly constituted State, county and municipal law enforcement agencies and other Federal agencies that do not have laboratories.

Assistance can be obtained by letter request (in duplicate) addressed to the appropriate BNDD Regional Laboratory.

* Approximately $140,000 was one time cost of equipment and instrumentation.

10. DATE OF REPORT: October 27, 1969

Department of Commerce

CENTER FOR RESEARCH IN MEASUREMENT METHODS
INSTALLATION

Department of Commerce (CENSUS)
AGENCY OR DEPT.

135

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Benjamin Tepping
A. TECHNICAL DIRECTOR: Dr. Benjamin Tepping

3. LOCATION: A. Suitland (Nearest City) B. Prince Georges (County) C. Maryland (State)

4. P. O. ADDRESS: Bureau of the Census
A. Suitland (City) B. Maryland (State) C. (Zip Code) D. 301-440-1640 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 5
B. ALL OTHER PERSONNEL (Total): 3

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 125,000
B. EXTRAMURAL (Total): $ 150,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Has responsibility of conducting and supporting research on long-range problems of measurement of social and economic phenomena in censuses and surveys.

Conducts experiments to estimate the effects of response errors in analyzing census data.

Conducts experiments to estimate the effect of coders on the variability of census statistics.

By analyzing basic data, tries to formulate causes for the bias in statistics gathered from rotating panels and formulate methods to reduce these biases.

Produces mathematical models to investigate the problem of linking records from two files or lists and formulates optimum decision rules.
(12-01 Mathematical Sciences - Mathematics and Statistics)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

136 8. MAJOR EQUIPMENT:

NONE

9. COMMENT AND PUBLICATION REFERENCES:

NONE

10. DATE OF REPORT: November 20, 1969

ENGINEERING DEVELOPMENT LABORATORY
INSTALLATION

DEPARTMENT OF COMMERCE (CENSUS)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Anthony Berlinsky
   A. TECHNICAL DIRECTOR: Anthony Berlinsky

3. LOCATION: A. Suitland (Nearest City) B. Prince Georges (County) C. Maryland (State)

4. P. O. ADDRESS: Bureau of the Census
   A. Suitland (City) B. Maryland (State) C. 20233 (Zip Code) D. (301) 440-1440 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 6
   B. ALL OTHER PERSONNEL (Total): 7

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 138,000
   B. EXTRAMURAL (Total): $ 36,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The function of this laboratory is to provide support to the Census Bureau mission of information gathering and dissemination, particularly in the processing of data from censuses and surveys. In earlier censuses, this laboratory produced and maintained specialized tabulating equipment (such as the Census unit counter and multi-column sorter) and key punch devices. Principal current activities include:

Design and prototype development work on a variety of paper-handling devices. Experimental work with automatic paper-handling devices to speed up work processes. (14-05 Microfilm) (17-05 Optical Scanning)

To develop features expanding the usability of a commercial microfilm retrieval system, namely, film cartridge feeding; manual and automatic film-to-film copying; manual and automatic search code entry with checking for both alphabetic and numeric codes.
(14-05 Microfilm) (05-02 Information Retrieval)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Planetary Cameras.

Quartz Iodide lighting lamps.

High-Speed flashlighting.

Vacuum paper pick-up mechanisms.

Narrow beam light detectors.

9. COMMENT AND PUBLICATION REFERENCES:

NONE

10. DATE OF REPORT: November 20, 1969

AIR RESOURCES: ATMOS. TURBULENCE & DIFFUSION LABORATORY — **INSTALLATION**

COMMERCE (ESSA) — **AGENCY OR DEPT.**

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Frank A. Gifford
   A. TECHNICAL DIRECTOR:

3. LOCATION: A. Oak Ridge *(Nearest City)* B. Anderson *(County)* C. Tennessee *(State)*

4. P. O. ADDRESS: P.O. Box E, Air Resources Atmos. Turbulence & Diff. Lab., Air Resources Labs., ESSA
   A. Oak Ridge *(City)* B. Tenn. *(State)* C. 37831 *(Zip Code)* D. 483-8611 E. 34301 *(Telephone (Area Code & No.)*

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 6
   B. ALL OTHER PERSONNEL (Total): 5

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 226 thousand
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Carries out a program of theoretical and experimental research on boundary layer processes in the earth's atmosphere (04-02 Meteorology). The research emphasizes the problems of defining the dispersion of pollutants together with the application of numerical models to understanding diffusion processes (13-02 Air Pollution).

Meteorological support in connection with the various operations of the Atomic Energy Commission at the Oak Ridge National Laboratory is also provided.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

140 8. MAJOR EQUIPMENT:

9. COMMENT AND PUBLICATION REFERENCES:

ESSA Science and Engineering, July 13, 1965 to June 30, 1967, ESSA, Department of Commerce, April 1968.

10. DATE OF REPORT: September 29, 1969

AIR RESOURCES LABORATORIES
INSTALLATION

COMMERCE (ESSA)
AGENCY OR DEPT.

141

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Lester Machta
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Silver Spring (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: Environmental Science Services Administration
A. Silver Spring (City) B. Maryland (State) C. 20910 (Zip Code) D. 301-495-2252 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 25
B. ALL OTHER PERSONNEL (Total): 15

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 696 thousand
B. EXTRAMURAL (Total): $ - - - - - -

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Air Resources Laboratories (ARL) conduct and manage a broad program of theoretical research and field investigations of meteorological problems associated with the diffusion, transport and deposition of atmospheric contaminants. Special meteorological activities are performed for the Atomic Energy Commission, the National Air Pollution Control Administration of the Department of Health, Education and Welfare and the Department of Transportation. In addition, research in meteorological statistical methods is conducted. Scientific activities include the following areas:

Global diffusion and stratosphere radioactivity (04-01) Atmospheric Physics; 07-05 Radio and Radiation Chemistry)
Mesoscale Transport and Diffusion (04-01 Atmospheric Physics)
Meteorology of Urban Air Pollution (04-02 Meteorology: 13-02 Air Pollution)
Meteorology for Nuclear Testing (14-02 Meteorology; 18-08 Radioactive Fallout)
Sonic Boom (04-02 Meteorology; 20-01 Sonic Boom)
Meteorological Statistics (12-01 Statistical Analysis and Tests)

Scientific and management support is provided to the following field installations:

Air Resources Atmospheric Turbulence and Diffusion Laboratory, Oak Ridge, Tennessee (funded jointly by AEC and ESSA)
Air Resources Laboratory, Las Vegas, Nevada (funded and supported by AEC)
Field Research Office, Idaho Falls, Idaho (funded and supported by AEC)
Division of Meteorology, Raleigh, North Carolina (funded and supported by NAPCA, DHEW)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

142 8. MAJOR EQUIPMENT:

None

9. COMMENT AND PUBLICATION REFERENCES:

The Air Resources Laboratories are major components of the ESSA Research Laboratories, Boulder, Colorado which is described separately.

ESSA Science and Engineering, July 13, 1965 to June 30, 1967, ESSA, Department of Commerce, April 1968

10. DATE OF REPORT: September 29, 1969

ATLANTIC OCEANOGRAPHIC AND METEOROLOGICAL LABORATORIES
INSTALLATION

COMMERCE (ESSA)
AGENCY OR DEPT.

143

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Harris B. Stewart, Jr. A. TECHNICAL DIRECTOR: ----

3. LOCATION: A. Miami (Nearest City) B. Dade (County) C. Florida (State)

4. P. O. ADDRESS: 901 South Miami Avenue

A. Miami (City) B. Florida (State) C. 33130 (Zip Code) D. 305 - 350-4104 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 62
B. ALL OTHER PERSONNEL (Total): 44

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 2.2 million
B. EXTRAMURAL (Total): $ 124 thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Atlantic Oceanographic and Meteorological Laboratories are composed of the following component laboratories:

Marine Geology and Geophysics Laboratory
Physical Oceanographic Laboratory
Sea-Air Interaction Laboratory
National Hurricane Research Laboratory
Experimental Meteorology Laboratory

The laboratories conduct research on ocean basins and borders (08-10 Ocean Bottom); oceanic physical and dynamical processes (08-03 Ocean Currents, Ocean Waves, and Dynamic Oceanography); ocean-atmosphere interactions (04-02 Meteorology, 08-03 Dynamic Oceanography); and the origin, structure and motion of hurricanes and other tropical phenomena, and the modification of hurricanes, tropical cloud systems and precipitation (04-02 Meteorology, Tropical Cylones, Modification).

A. ADDITIONAL COSATI CODES:

144 8. MAJOR EQUIPMENT:

None; see comment below.

9. COMMENT AND PUBLICATION REFERENCES:

In conducting their research program the laboratories use ESSA's oceanographic vessels operated by the Coast and Geodetic Survey and the research aircraft of ESSA's Research Flight Facility.

The Atlantic Oceanographic and Meteorological Laboratories are major components of the ESSA Research Laboratories, Boulder, Colorado, which is described separately.

Publication reference:

ESSA Science and Engineering, July 13, 1965 to June 30, 1967, ESSA, Department of Commerce, April 1968.

10. DATE OF REPORT: September 30, 1969

EARTHQUAKE MECHANISMS LABORATORY
INSTALLATION

COMMERCE (ESSA)
AGENCY OR DEPT.

145

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Don Tocher A. TECHNICAL DIRECTOR:

3. LOCATION: A. San Francisco (Nearest City) B. San Francisco (County) C. California (State)

4. P. O. ADDRESS: 390 Main Street , ESSA

A. San Francisco (City) B. Calif. (State) C. 94105 (Zip Code) D. 415-556-7710 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 8
B. ALL OTHER PERSONNEL (Total): 6

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 528 thousand
B. EXTRAMURAL (Total): $ - - - - - - - -

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The objective of this laboratory is to conduct basic research into the mechanisms causing earthquakes. Potential benefits will be the possible prediction of seismic events; better risk maps showing most likely areas of earthquake activity; and better building codes for construction of all types.

Activities are grouped in the following areas:

Earthquake mechanisms (08-11 seismology)
Fault movement (08-11 seismology; 08-07 geology and mineralogy)
Engineering seismology (13-13 structural engineering)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

146 8. MAJOR EQUIPMENT:

Network of 30 invar fault creep measuring stations and magnetic recorder along the San Andreas Fault in California.

9. COMMENT AND PUBLICATION REFERENCES:

ESSA Science and Engineering July 13, 1965 to June 30, 1967,

U. S. Department of Commerce - ESSA - April 1968

10. DATE OF REPORT: September 29, 1969

GEODETIC RESEARCH & DEVELOPMENT LABORATORY
INSTALLATION

COMMERCE (ESSA)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Hellmut H. Schmid A. TECHNICAL DIRECTOR:

3. LOCATION: A. Rockville *(Nearest City)* B. Montgomery *(County)* C. Maryland *(State)*

4. P. O. ADDRESS: 6001 Executive Boulevard, Coast & Geodetic Survey ESSA
A. Rockville *(City)* B. Maryland *(State)* C. 20852 *(Zip Code)* D. 301 496-8531 *(Telephone (Area Code & No.)*

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 18
B. ALL OTHER PERSONNEL (Total): 4

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 400,000
B. EXTRAMURAL (Total): $ 50,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Mission: To conduct research and development in physical and geometric geodesy, and photogrammetry, for new concepts, techniques, and their application, determination of positions of points on the earth's surface, shape and size of the earth, variation of terrestrial gravity.

To apply the geometric and gravimetric methods provided by the new era of satellite geodesy to the geodetic problem on the moon and planetary bodies.

To develop modern statistical concepts for the establishment of an integrated geodetic system on a worldwide as well as a continental configuration with due consideration of interdisciplinary contributions. (08-05 - Earth Sciences, Oceanography, Geodesy, Geodetic surveying.)

Functions & Activities: Integrated R & D in Geodesy and Photogrammetry in support of operational activities directed toward improving the accurate determination of the earth's configuration and distribution of mass, particularly with respect to geometric satellite triangulation. (08-02 - Earth Sciences, Oceanography; Cartography, Mapping, Photogrammetry, Terrain Models, etc.)

Proposes conceptual and engineering approaches for establishment of geodetic control and develops analytical and analog procedures for the acquisition and reduction of geodetic and photogrammetric data. Studies are conducted in other geophysical disciplines, particularly on crustal movements in unstable regions and the influence of time variable parameters on geodetic products.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

The Laboratory has a moderate amount of conventional geodetic and photogrammetric instruments and access to specialized government facilities, as necessary, to test the influence of different physical environments on precision geodetic and photogrammetric measuring systems.

5	Wild Aviotar lens cones
1	Wild Aviogon lens cone
1	Wild RC-7 automatic plate camera
1	Wild RC-5 camera
1	Worden gravity meter
1	Wild T-4 astronomical theodolite
1	Askania precision theodolite "Gigas"
1	Zeiss Rectifier SEG V
1	Wild Autograp A-7
1	Universal Zenith Mount

The above equipment is stored at ESSA, C&GS facilities.

9. COMMENT AND PUBLICATION REFERENCES:

The Geodetic Research and Development Laboratory is an organizational part of the Coast and Geodetic Survey's Office of Geodesy and Photogrammetry, an organization belonging to the Environmental Science Services Administration.

10. DATE OF REPORT: November 20, 1969

GEOPHYSICAL FLUID DYNAMICS LABORATORY
INSTALLATION

COMMERCE (ESSA)
AGENCY OR DEPT.

149

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Joseph Smagorinsky
A. TECHNICAL DIRECTOR: ----

3. LOCATION: A. Princeton (Nearest City) B. Mercer (County) C. New Jersey (State)

4. P. O. ADDRESS: Princeton University, Forrestal Campus, P. O. Box 308
A. Princeton (City) B. New Jersey (State) C. 08540 (Zip Code) D. 609-452-6502 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 31
B. ALL OTHER PERSONNEL (Total): 21

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 2.2 million
B. EXTRAMURAL (Total): $ 4 thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research is directed toward fundamental understanding of large scale circulation systems of the atmosphere and oceans and their interaction. The objective is to develop a comprehensive theory of the dynamics of geophysical fluid systems and processes which are larger than microscale. The successful development of such a theory in the form of numerical models will lead to the systematic improvement of short-range prediction; will establish the limits and the means for long-range predictions; and will provide techniques for discovering and testing means for large scale weather and climate modification.

Large scale model experimentation and development are carried out on two UNIVAC 1108 computers in the following research areas:

Atmospheric General Circulation (04-02 Atmospheric Models)
Ocean Circulation (08-03 Ocean Currents)
General Circulation of the Ocean-Atmosphere System (08-03 Dynamic Oceanography; 04-02 Atmospheric Models)
Experimental Prediction (04-02 Meteorology)
Basic Geophysical Fluid Dynamics (20-04 Fluid Dynamic Properties)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

150 8. MAJOR EQUIPMENT:

High speed electronic computer UNIVAC 1108.

9. COMMENT AND PUBLICATION REFERENCES:

The Geophysical Fluid Dynamics Laboratory is a major component of the ESSA Research Laboratories, Boulder, Colorado which is described separately.

ESSA Science and Engineering, July 13, 1965 to June 30, 1967, ESSA, Department of Commerce, April 1968.

This is a federal government installation occupying leased space on the Forrestal Campus.

10. DATE OF REPORT: September 29, 1969

Geophysics Research Group
INSTALLATION

COMMERCE (ESSA)
AGENCY OR DEPT.

151

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: J. M. Klaasse
A. TECHNICAL DIRECTOR: S. T. Algermissen

6001 Executive Blvd.
3. LOCATION: A. Rockville (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: Geophysics Research Group, Office of Seis. & Geomag., C&GS
A. Rockville (City) B. Maryland (State) C. 20852 (Zip Code) D. 301-496-8428 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 13
B. ALL OTHER PERSONNEL (Total): 2

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 195,000
B. EXTRAMURAL (Total): $ 97,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts research in seismology and geomagnetism in support of operational programs. Collaborates with the Laboratory for Environmental Research in the planning and conduct of seismological and geomagnetic research.

Analyzes and applies data collected by the domestic network of seismological and geomagnetic observatories, field parties, and from cooperating observatories, domestic and foreign.

Collaborates in the development of instrumentation and automatic data processing systems for the acquisition, analysis, and compilation of seismic and geomagnetic data.

Conducts research on problems which may improve operations in the field, and in the analysis, processing, and archiving of seismic and geomagnetic data.

(20-03 - Physics - Electricity and Magnetism)

A. ADDITIONAL COSATI CODES:
08-11 Earthquakes
17-10 Seismic Detection
13-13 Earthquakes - Resistant Structures

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

152 8. MAJOR EQUIPMENT:

The Coast and Geodetic Survey operates seismograph stations at the following 18 major sites in the United States, Guam and Puerto Rico:

Adak, Alaska
Albuquerque, New Mexico
Baker, Oregon
Barrow, Alaska *
College, Alaska *
Guam, Mariana Islands *
Honolulu, Hawaii *
Kodiak, Alaska
McMinnville, Tennessee
Middleton Island, Alaska
Newport, Washington *
Oroville, California
Palmer, Alaska
San Juan, P.R. *
Sitka, Alaska *
Tucson, Arizona *
Ukiah, California
Washington, D.C.

The Coast and Geodetic Survey operates 12 geomagnetic observatories including the eight (*) joint geomagnetic and seismological observatories above and also:

Fredericksburg, Va.
Boulder, Colo

and cooperatively:

Castle Rock, California
Dallas, Texas.

9. COMMENT AND PUBLICATION REFERENCES:

"ESSA Science and Engineering" - April 1968

10. DATE OF REPORT:
November 21, 1969

JOINT TSUNAMI RESEARCH GROUP
INSTALLATION

COMMERCE (ESSA)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Gaylord Miller
   A. TECHNICAL DIRECTOR:

3. LOCATION: A. Honolulu (Nearest City) B. Honolulu (County) C. Hawaii (State)

4. P. O. ADDRESS: 2525 Correa Road, University of Hawaii, Pacific Oceanographic Lab.
   A. Honolulu (City) B. Hawaii (State) C. 96822 (Zip Code) D. 808-944-8084 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 4
   B. ALL OTHER PERSONNEL (Total): 1

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 130 thousand
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

To improve understanding of generation, propagation and onshore runup mechanisms of tsunamis; to improve the operation of the tsunami warning system in the Pacific; to conduct numerical studies on the hydrodynamics of harbors.

In cooperation with the University of Hawaii progress has been made on developing several types of deep-sea tsunami gauges.

A. ADDITIONAL COSATI CODES:
08-03 ocean waves

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

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8. MAJOR EQUIPMENT:

9. COMMENT AND PUBLICATION REFERENCES:

ESSA Science and Engineering July 13, 1965 to June 30, 1967

U.S. Department of Commerce - ESSA - April 1968

Joint Tsunami Research Group is a subsidiary Station of the Pacific Oceanographic Laboratory.

10. DATE OF REPORT: September 30, 1969

LABORATORY FOR ENVIRONMENTAL DATA RESEARCH
INSTALLATION

COMMERCE (ESSA)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Gerald L. Barger
A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Gramax Bldg. Room 730
8060 - 13th Street
Silver Spring, Maryland
B. Montgomery (County)
C. Md. (State)

4. P. O. ADDRESS: Environmental Data Service, Environmental Science Services Administration
A. Silver Spring (City)
B. Md (State)
C. 20910 (Zip Code)
D. (301) 495-2416 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 7
B. ALL OTHER PERSONNEL (Total): 6

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 502,749
B. EXTRAMURAL (Total): $

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Guides the applied research activities needed in expanding the analysis, understanding and interpretation of Climatological data to meet user requirements. Anticipates user needs for Climatological data for design and environmental risk assessment and stimulates original work to meet these needs.

Conducts research and development of procedures, methods and techniques of Environmental data acquisition, archiving and dissemination. Translates research developments into operational capabilities through new techniques including automation and system designs. Recommends disposition of research funds for contracts with universities, other agencies and private researchers.

04-02 Meteorology - Climatology

Principal projects - FY 1969

1. Biological Studies - Means of monitoring weather conditions in their relationship to production to foods and fiber
2. Studies of long-term Climatic Change. Long-term changes in lake- and sea levels, rainfall, temperature, etc. Effects of cities and population systems on the climate.

3. Statistical Methods Effort - Development of methods of analyzing data with reference to engineering applications - shelter of people and animals-effects of wind, temperature and radiation on structures - how to derive pertinent information from available data or how to get the necessary observations.

4. Development of data storage and retrieval systems.
5. Synoptic Climatology Analyses - e.g. Alaska

A. ADDITIONAL COSATI CODES:
12-01, Mathematics and Statistics - Statistical Methods.

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

156 8. MAJOR EQUIPMENT:

Data storage and retrieval center together with computer facility is available for research at the National Weather Records Center, Asheville, N.C. Research groups should contact Director, National Weather Records Center, Federal Bldg., Asheville, N.C. 28801.

9. COMMENT AND PUBLICATION REFERENCES:

ESSA Publication

(1) The National Weather Records Center, Asheville, N.C.
U.S. Dept of Commerce - ESSA

10. DATE OF REPORT:
November 20, 1969

MAUNA LOA OBSERVATORY
INSTALLATION

COMMERCE (ESSA)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Howard T. Ellis
   A. TECHNICAL DIRECTOR:

3. LOCATION: A. Mauna Loa (Nearest City) B. Hawaii (County) C. Hawaii (State)

4. P. O. ADDRESS: 461 W. Lanikaula Street, Mauna Loa Observatory
   A. Hilo (City) B. Hawaii (State) C. 96720 (Zip Code) D. Hilo 3482 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 3
   B. ALL OTHER PERSONNEL (Total): 2

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 92 thousand
   B. EXTRAMURAL (Total): $ - - - -

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The objective of this laboratory is to implement and maintain a basic monitoring program of those constituents of the atmosphere having a long term effect on the environment.

Activities are grouped into the following areas:

(1) Measurement of gaseous atmospheric constituents (04-01 atmospheric physics).
(2) Radiation measurements (03-02 astrophysics).
(3) Particulate matter investigation (04-01 atmospheric physics).
(4) Atmospheric electricity measurements (04-01 atmospheric physics).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

158 8. MAJOR EQUIPMENT:

Special purpose equipment.

Dobson ozone spectrometer

9. COMMENT AND PUBLICATION REFERENCES:

ESSA Science and Engineering July 13, 1965 to June 30, 1967,

U. S. Department of Commerce - ESSA - April 1968

Mauna Loa Observatory is a field station of the Atmospheric Physics and Chemistry Laboratory, ESSA Research Labs., Boulder, Colorado

10. DATE OF REPORT: September 30, 1969

METEOROLOGICAL SATELLITE LABORATORY
INSTALLATION

COMMERCE (ESSA)
AGENCY OR DEPT.

159

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Jay S. Winston (Acting)
   A. TECHNICAL DIRECTOR: Jay S. Winston (Acting)

3. LOCATION: A. Federal Office Bldg. 4 (Nearest City) B. Prince Georges (County) C. Maryland (State)

4. P. O. ADDRESS: National Environmental Satellite Center, Environmental Science Svcs. Adm.
   A. Washington, (City) B. D. C. (State) C. 20233 (Zip Code) D. (301) 440-7470 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 23
   B. ALL OTHER PERSONNEL (Total): 14

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 746,000
   B. EXTRAMURAL (Total): $ 517,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Improve understanding of the atmosphere through application of environmental satellite data to studies of atmospheric dynamics & thermodynamics, radiation and composition.

Develop techniques to extract and apply information contained in the basic observations obtained by meteorological satellites. Major emphasis is placed on the derivation of quantitative information for large scale weather analysis and forecasting (04-02).

Specific projects and activities:

1. Application of satellite infrared spectrometer data to weather analysis (04-02)*
2. Derivation of upper wind velocity information from ATS satellite pictures (04-02)*
3. Satellite data applications are developed for:
   Improved understanding of atmospheric dynamics for application to longer range weather forecasting (04-02)*;
   Mapping of snow fields for hydrological applications (08-08);
   Mapping of sea surface temperature, mapping of sea ice distribution, and studies of reflection of sun on ocean surfaces (08-10).

*Weather observation and prediction

A. ADDITIONAL COSATI CODES:
None

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

The Laboratory has time-share use of ESSA-owned CDC 6600 computer facility.

9. COMMENT AND PUBLICATION REFERENCES:

This report includes the manpower and research activities of the Environmental Satellite Group.

10. DATE OF REPORT:

November 21, 1969

NATIONAL METEOROLOGICAL CENTER
INSTALLATION

COMMERCE (ESSA)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Frederick G. Shuman
A. TECHNICAL DIRECTOR: Dr. Frederick G. Shuman

3. LOCATION: Federal Office Bldg.4
A. Suitland, Md. (Nearest City)
B. Prince George's (County)
C. Maryland (State)

4. P. O. ADDRESS: Environmental Science Services Administration
A. Washington (City)
B. D.C. (State)
C. 20233 (Zip Code)
D. (301)440-7156 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1968):
A. R&D PROFESSIONALS (Total): 15
B. ALL OTHER PERSONNEL (Total): 3

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 438,800
B. EXTRAMURAL (Total): $ 180,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Performs research and development to improve various large-scale weather analysis and prediction products of the National Meteorological Center on an international scale. Research is conducted to formulate and refine dynamical weather prediction models that take advantage of the most powerful electronic computers, but at the same time can be calculated fast enough to meet the deadlines of rigid operational forecast schedules. Research is also directed toward expanding the forecast area from the Northern Hemisphere to the entire globe (04-02 Atmospheric Sciences - Meteorology)

Continuing development and Application of the Operational Primitive Eqtn Model with emphasis on precipitation, convective adjustment, diffusion and radiation. (04-02)

Basic modeling experiments of the fine-mesh and spectral equation models (04-02)

Atmospheric evolution related to energy sources and sinks aimed at improving long-range forecasting (04-02)

Conversion of medium resolution, infrared radiometer and satellite infrared radiometer spectrometer radiance data into conventional meteorological parameters (04-02 [Reimbursable])

Investigating energy transfers, analysis techniques, and data reliability above 50,000 ft (04-02 [Partly reimbursable])

8. ADDITIONAL COSATI CODES:

None

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

162 8. MAJOR EQUIPMENT: The National Meteorological Center has a wide range of special equipment to process and distribute basic meteorological information on a nationwide and, to some extent, on a worldwide basis.

Special Equipment

1. IBM 7094-II used for data processing and analysis. Also prepares output information for teletypewriter and facsimile transmission or for machine drawn charts.
2. IBM 360/30 (2) one of these is used as a communications computer , the other as a backup for the first and as a stand-alone computer.
3. UAC Facsimile Converter connected to the 360/30 to directly transmit facsimile charts prepared in the computer.
4. EAI Data Plotters (4) are used to draw both analyses and forecasts produced by the computers.
5. CDC 6600 (2) these are operated by the Computer Division, ESSA, and are used to calculate the Primitive Equation Model to produce forecasts out to 48 hours and on special days out to 144 hours.

9. COMMENT AND PUBLICATION REFERENCES:

Ref: 1. Center Brochure: The National Meteorological Center - Brief description of operations
2. Center Technical Reports: Various program descriptions.

10. DATE OF REPORT: October 1, 1969

NATIONAL SEVERE STORMS LABORATORY
INSTALLATION

COMMERCE (ESSA)
AGENCY OR DEPT.

163

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Edwin Kessler
A. TECHNICAL DIRECTOR: ----

3. LOCATION: A. Norman (Nearest City) B. Cleveland (County) C. Oklahoma (State)

4. P. O. ADDRESS: 1616 Halley Avenue
A. Norman (City) B. Oklahoma (State) C. 73070 (Zip Code) D. 405-329-0388 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 22
B. ALL OTHER PERSONNEL (Total): 18

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 836 thousand
B. EXTRAMURAL (Total): $ 98 thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts studies toward a better understanding of tornadoes, squall lines, thunderstorms, and other severe local storms, and develops improved methods for their early detection, identification, and prediction. Data for the research are obtained from a high density network of weather stations, an instrumented tower, serial releases of rawinsondes, conventional and Doppler weather radars, electric field monitors, and instrumented aircraft. These measurements are used to obtain new information on the structure and dynamics of severe local storms and to provide the basis for improved weather forecasting and other services. Advanced techniques are developed for probing the atmosphere by conventional and Doppler radars, and for processing, displaying, and transmitting the information obtained by these techniques. Weather radar studies are conducted to interpret radar information in terms of the characteristics of atmospheric phenomena.

Research efforts are organized under the following areas:

Severe Storm Morphology and Dynamics (04-02 Thunderstorms; Tornadoes)
Storm Hazards to Aircraft Safety (01-03 Aircraft)
Electricity of Severe Storms (04-01 Lightning; 20-03 Electric Discharges)
Doppler Radar Techniques (17-09 Doppler Radar)
Weather Radar Interpretation (17-09 Radar Images)
Thunderstorm Forecast Technique Development (04-02 Weather Forecasting)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

1. WKY 1500-foot TV tower instrumented for meteorological observation.
2. Forty-three meso-meteorological stations in a dense network.
3. One WBRTR-57 Weather Bureau type radio theodolite.
4. Several radars as follows:

One INPS-4 Radar
One CPN-18 Radar
One WSR-57 Radar
One WSD-67 Radar
One X-Band Doppler Radar
One TPQ-11 Radar
One M33 Radar

9. COMMENT AND PUBLICATION REFERENCES:

Purposes and Programs of the National Severe Storms Laboratory, Norman, Oklahoma, NSSL Technical Memorandum No. 23, ESSA, Department of Commerce, December 1964. (CFTSI No. PB-166675).

ESSA Science and Engineering, July 13, 1965 to June 30, 1967, ESSA, Department of Commerce, April 1968.

The National Severe Storms Laboratory is a major component of the ESSA Research Laboratories, Boulder, Colorado which is described separately.

10. DATE OF REPORT: September 29, 1969

OFFICE OF SYSTEMS DEVELOPMENT
INSTALLATION

COMMERCE (ESSA)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: E. M. MacCutcheon
A. TECHNICAL DIRECTOR: M. E. Ringenbach

3. LOCATION: A. Rockville (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: C&GS, ESSA, 6001 Executive Blvd.
A. Rockville (City) B. Md. (State) C. 20852 (Zip Code) D. 301-496-8347 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 20
B. ALL OTHER PERSONNEL (Total): 24

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 850K
B. EXTRAMURAL (Total): $ -0-

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Office of Systems Development is engaged in activities to enhance the technical capabilities of the Coast and Geodetic Survey by the development of novel systems, systems improvements or systems applications in order to better satisfy requirements or to afford new opportunities to achieve missions.

Major Activities:

Development of C&GS-wide data acquiring, processing and disseminating systems with optimum automation of data acquisition and data processing (09-02-Design, development and application of electronic computers and peripheral equipment; system evaluation)

Development of buoy systems for measurement of time dependent variants in the ocean (08-03 Dynamic oceanography; 08-08 Hydrology and Liminology;)

Development of systems for reliable long range telemetry of oceanographic and meteorological data via geo-stationary satellite (09-06 Telemetry)

Development of warning system to detect tsunami waves in the deep ocean (08-03 Dynamic oceanography - ocean waves, currents, tides; 08-11 Seismology - detection measurement and recording of seismic phenomena)

A. ADDITIONAL COSATI CODES:
08-05 Geodesy - geodetic surveying
09-03 Electronic and Electrical Engineering
17-07 - Navigation and Guidance

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

166 8. MAJOR EQUIPMENT:

The facility has a wide range of conventional equipment and facilities for developing, testing, and evaluating instrumentation for application in oceanography and earth sciences.

9. COMMENT AND PUBLICATION REFERENCES: None

10. DATE OF REPORT: November 19, 1969

PACIFIC OCEANOGRAPHIC LABORATORY	COMMERCE (ESSA)
INSTALLATION	AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: ____

2. DIRECTOR: William D. Barbee   A. TECHNICAL DIRECTOR: ----

3. LOCATION: A. Seattle (Nearest City)   B. King (County)   C. Washington (State)

4. P. O. ADDRESS: 1801 Fairview Avenue East

A. Seattle (City)   B. Washington (State)   C. 98102 (Zip Code)   D. 206-543-5234 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 9
B. ALL OTHER PERSONNEL (Total): 4

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 236 thousand
B. EXTRAMURAL (Total): $ 6 thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The laboratory conducts systematic oceanographic and geophysical studies of the Pacific Ocean and its basin to increase the understanding of the state, dynamics and processes of the ocean (08-03 Ocean Currents, Ocean Waves) and of the structure and processes related to the ocean basins (08-10 Ocean Bottom).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

168 8. MAJOR EQUIPMENT:

None; see comments below.

9. COMMENT AND PUBLICATION REFERENCES:

In conducting its research program, the laboratory uses ESSA's oceanographic vessels operated by the Coast and Geodetic Survey.

The Joint Tsunami Research Group located in Honolulu, Hawaii, is also a component part of this laboratory and is reported separately as a subsidiary installation.

Publication reference:

ESSA Science and Engineering, July 13, 1965 to June 30, 1967, ESSA, Department of Commerce, April 1968.

The Pacific Oceanographic Laboratory is a major component of the ESSA Research Laboratories, Boulder, Colorado which is described separately.

10. DATE OF REPORT: September 30, 1969

RESEARCH FLIGHT FACILITY
INSTALLATION

COMMERCE (ESSA)
AGENCY OR DEPT.

169

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Howard J. Mason, Jr.   A. TECHNICAL DIRECTOR:

3. LOCATION: A. Miami (Nearest City)   B. Dade (County)   C. Florida (State)

4. P. O. ADDRESS: P. O. Box 197, International Airport Branch

   A. Miami (City)   B. Florida (State)   C. 33148 (Zip Code)   D. 305-350-5607 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   - A. R&D PROFESSIONALS (Total): 23
   - B. ALL OTHER PERSONNEL (Total): 20

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   - A. INTRAMURAL (Total): $ 1.2 million
   - B. EXTRAMURAL (Total): $ 26 thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

To meet the requirements of the ESSA Research Laboratories and of other government-supported research for environmental measurements from aircraft, and for outfitting and operating aircraft specially instrumented for research (01-03 Airplanes, 04-01 Atmospheric Physics, 04-02 Meteorology).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

1. Two DC-6 Aircraft: Long-range, pressurized four-engine (reciprocating type) land plane. Capable of flying at altitudes up to 25,000 feet, with a cruise speed of 220 knots (TAS), mission radius of 1,100 nautical miles. Equipped with standard and Doppler aids to navigation and highly flexible communications system.

2. One B-57 Aircraft: High-altitude, twin jet research/reconnaissance aircraft, normally operated at altitudes between 30,000 and 45,000 feet at speed of approximately 430 knots (TAS), with a mission radius of 750 nautical miles. Standard and Doppler navigational/communications facilities are available on this aircraft.

3. One C-54 Aircraft: Long-range, unpressurized, four-engine (reciprocating type) land plane. Capable of flying at altitudes up to 25,000 feet, with a cruise speed of 200 knots (TAS), mission radius of 1,440 nautical miles. In addition to its uses for operational/research missions the aircraft serves as a test-bed for developmental instrumentation and logistical support. The aircraft is equipped with standard and Doppler aids to navigation and a highly flexible communications system.

All four of the above aircraft are specially instrumented to make meteorological measurements in storm situations such as hurricanes or snow storms and in other weather conditions.

9. COMMENT AND PUBLICATION REFERENCES:

The Research Flight Facility in conducting research flights for ESSA undertakes measurements for other organizations on a non-interference basis and conducts special flights when the aircraft are available on a reimbursable basis. Inquiries should be directed to the Director of the Facility.

Publication references:

ESSA Science and Engineering, July 13, 1965 to June 30, 1967, ESSA, Department of Commerce, April 1968.

The ESSA Research Flight Facility: Facilities for Airborne Atmospheric Research. ESSA Technical Report ERL 126-RFF-1, ESSA, Department of Commerce, August 1969.

The Research Flight Facility is a major component of the ESSA Research Laboratories, Boulder, Colorado, which is described separately.

10. DATE OF REPORT: September 29, 1969

RESEARCH GROUP, HYDROGRAPHY & OCEANOGRAPHY
INSTALLATION

COMMERCE (ESSA)
AGENCY OR DEPT.

171

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Lt. Cdr. R. L. Swanson
   A. TECHNICAL DIRECTOR: Lt. Cdr. R. L. Swanson

3. LOCATION: A. Rockville (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: Coast and Geodetic Survey, 6001 Executive Blvd.
   A. Rockville (City) B. Maryland (State) C. 20852 (Zip Code) D. 301-496-8175 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 2
   B. ALL OTHER PERSONNEL (Total): 1

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 58,000
   B. EXTRAMURAL (Total): $

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts research in submarine topography and in the improvement of methods and techniques of cartographic comilation and presentation.

Cartographic Research - Performs research necessary to develop new charting and survey methods. Develops new techniques of data processing, validation, and presentation - continuing project.

Oceanographic Research - Conducts research in oceanography in support of operational programs.

Current Programs: National Ocean Surveys Program
New Programs: Testing and Calibration of Current Meter Systems
Cosati Codes: 0803

A. ADDITIONAL COSATI CODES:
0802 - Mapping

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

These ships are not strictly research, but collect information producing a product such as a nautical chart.

1. OCEANOGRAPHER
2. DISCOVERER
3. DAVIDSON
4. FAIRWEATHER
5. FERREL
6. MC ARTHUR
7. MT MITCHELL
8. PATHFINDER
9. PEIRCE
10. RAINIER
11. RESEARCHER
12. RUDE
13. SURVEYOR
14. WHITING
15. HECK

See report from Research Vessels Commerce (ESSA), or

9. COMMENT AND PUBLICATION REFERENCES:

For further information about utilization of ESSA ships for research purposes contact Administrator, Environmental Science Services Administration, Bldg. 5 6010 Executive Blvd., Rockville, Maryland 20852.

10. DATE OF REPORT: 11/20/69

RESEARCH LABORATORIES
INSTALLATION

COMMERCE (ESSA)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Wilmot N. Hess
A. TECHNICAL DIRECTOR: (same)

3. LOCATION: A. Boulder (Nearest City) B. Boulder (County) C. Colorado (State)

4. P. O. ADDRESS: ESSA Research Laboratories
A. Boulder (City) B. Colorado (State) C. 80302 (Zip Code) D. 303-447-1000 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 314
B. ALL OTHER PERSONNEL (Total): 352

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 12.2 million
B. EXTRAMURAL (Total): $ 666 thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes): The ESSA Research Laboratories conduct an integrated program of research and research services related to the solid earth, the atmosphere and oceans through eleven major laboratories and one facility. Five of the laboratories and the facility are located in places other than Boulder, Colorado. The six laboratories located at Boulder, Colorado, conduct research as follows:

Earth Sciences Laboratory: Earthquake processes (08-11 Seismology); internal structure and accurate figure of the earth and the distribution of its mass (08-05 Geodesy); earth's magnetic field, including sources and variations in strength of the magnetic field (08-14 Terrestrial Magnetism).

Atmospheric Physics and Chemistry Laboratory: Atmospheric physical and chemical processes important in weather processes and development of weather modification (04-02 Meteorology, 04-01 Atmospheric Physics).

Space Disturbances Laboratory: Monitoring and predicting fluctuations and disturbances in the earth's space environment associated with solar activity and interactions with the lower atmosphere (03-02 Solar Radiation, 04-01 Ionospheric Disturbances, 03-02 Solar Atmosphere, and 20-09 Magneto Hydrodynamics).

Aeronomy Laboratory: Physical and chemical processes of the ionosphere and exosphere of the earth and other planets (20-09 Plasma Physics, 20-08 Particle Physics, 22-02 Satellites, and 17-09 Radar Detection).

Wave Propagation Laboratory: Telecommunications capabilities and limitations of optical, infrared and millimeter frequencies, and development of new techniques for remote sensing of the environment (20-06 Optics, 20-14 Wave Propagation, 04-01 Atmospheric Physics, 17-02.1 Radio Signals, 17-09 Doppler Radar, and 20-01 Acoustics).

Institute for Telecommunication Sciences: Propagation of radio waves, electromagnetic properties of the earth and its atmosphere, nature of radio noise and interference, information transmission and antennas, and methods for more effective use of the electromagnetic spectrum for telecommunications (09-04 Information Theory, 17-02.1 Radio Communication, 17-03 Direction Finding, 17-09 Radar Detection, 20-14 Wave Propagation, 04-01 Atmospheric Physics, 04-02 Meteorology).

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT: 1. Equipment for measuring and testing telecommunication systems including: 40 ft. turntable and antenna pattern recorder, image plane and anecoic chamber for scale model antenna measurements, equipped mobile van for measurements of atmospheric and man-made radio noise, 1.6 megawatt radio transmitter at Plattville, Colorado, and other transmitters at Erie, Colorado, and Longbranch, Illinois, three 60-foot parabolic steerable antennas, network of ionosonde stations located on world-wide basis, atmospheric noise recorders and kinesonde to measure ionosphere movements.
2. For monitoring and predicting fluctuations and disturbances in the earth's space environment: Chain of riometer stations in Alaska with real time data transmission to central computer facility; ionospheric, solar radio noise and magnetic sensors; 3-cm. radio telescope; spectrohelioscope; H-alpha and white light solar telescope; special purpose transmitters and receivers for backscatter auroral data, solar proton and electron data and Faraday rotation.
3. For plasma physics and particle physics research: Electron beam probe for non-perturbing measurements of electric fields in plasmas; tube laboratory including induction heaters and vacuum furnace; shielded screen room; flowing afterglow system; tunable dye laser; cross-beam machine; high vacuum evaporative coating unit; large photographic optical spectrometer; various photometers and interferometers.
4. Two instrumented meteorological towers (500 ft. and 150 ft.); two mobile X-band Doppler meteorological radars, mobile variable frequency echo-sounder for atmospheric probing; two infrasonic measuring arrays; multifrequency millimeter wave radiometer for atmospheric probing in the field.
5. Single line absolute rubidium magnetometer; furnace for thermal demagnetization of rocks; paleo-intensity instrumentation.

9. COMMENT AND PUBLICATION REFERENCES:

The five laboratories and one facility located in places other than Boulder and described separately are as follows:

Air Resources Laborabory, Silver Spring, Md.
Atlantic Oceanographic and Meteorological Laboratories, Miami, Fla.
Geophysical Fluid Dynamics Laboratory, Princeton, N. J.
National Severe Storms Laboratory, Norman, Oklahoma
Pacific Oceanographic Laboratory, Seattle, Washington
Research Flight Facility, Miami, Fla.

Publication reference:

ESSA Science and Engineering, July 13, 1965 to June 30, 1967, ESSA, Department of Commerce, April 1968.

10. DATE OF REPORT: September 30, 1969

RESEARCH - OFFICE OF AERONAUTICAL CHARTING & CARTOGRAPHY COMMERCE (ESSA)
INSTALLATION AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
  A. R&D LABORATORY
    (1) ☒ GOVERNMENT-OPERATED
    (2) ☐ FFRDC
    (3) ☐ CONTRACTOR-OPERATED
  B. SUBSIDIARY R&D ORGANIZATION
    (1) ☐ GOVERNMENT-OPERATED
    (2) ☐ CONTRACTOR-OPERATED
  C. CONTRACTOR:

2. DIRECTOR: F. O. Diercks
  A. TECHNICAL DIRECTOR: Alfred C. Holmes (920A)

3. LOCATION: A. Rockville (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: Coast & Geodetic Survey, 6001 Executive Blvd.
  A. Rockville (City) B. Maryland (State) C. (Zip Code) D. (301) 496-8189 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
  A. R&D PROFESSIONALS (Total): 4
  B. ALL OTHER PERSONNEL (Total): 0

6. FUNDING (Approximate FY 1969 Dollar Obligation):
  A. INTRAMURAL (Total): $ 76,495
  B. EXTRAMURAL (Total): $ 313,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Translates new flight operational requirements and air navigation systems into graphic portrayals which will satisfy to the maximum extent the chart requirements for safe and efficient operation in the airspace. Conducts studies to improve existing charts, and develop non-conventional charting concepts. Provides ways to produce better charts more quickly and at less cost. (08-02 Mapping)

A joint effort research project by C&GS and IBM Corporation, with the latter under contract, is underway. The purpose of the study is to develop a system design to automate the production of Radio Facility charts, operate the system in parallel with the manual system, and evaluate the system to determine whether full implementation would be economical, efficient and responsive to the cartographic requirements of aeronautical charting. (08-02 Mapping)

A process for expediting and economizing the reproduction of the aeronautical charting program has been developed and implemented. The process, which incorporates process printing procedures, reduces the number of press runs, but does not change the physical appearance of the graphic. (08-02 Mapping)

  A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

No unique equipment

9. COMMENT AND PUBLICATION REFERENCES:

"ESSA Science and Engineering" April 1968
and forthcoming issue of same

10. DATE OF REPORT: November 20, 1969

RESEARCH VESSELS
INSTALLATION

COMMERCE (ESSA)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Lt.Cdr. R. L. Swanson
   A. TECHNICAL DIRECTOR: Lt.Cdr. R. L. Swanson

3. LOCATION: A. Rockville (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: Coast and Geodetic Survey, 6001 Executive Blvd.
   A. Rockville, (City) B. Md (State) C. 20852 (Zip Code) D. (301)496-8175 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): See Item 8
   B. ALL OTHER PERSONNEL (Total):

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ See * (Item 9)
   B. EXTRAMURAL (Total): $

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The vessels listed in Item 8 devote the majority of their time to operational activities such as nautical chart surveys and deep sea mapping activities of the Coast and Geodetic Survey. Oceanographic missions are carried out for the ESSA Research Laboratories.

The ships often take bottom samples as a routine part of nautical chart surveys. Surface meteorological observations are routinely made from the ships. The large ships obtain meteorological observations of the upper atmosphere. Most oceanographic studies carried out by these ships are concerned with determination of the physical parameters of the sea. Routine observations include: bathymetry, gravity, geomagnetics, sea temperature, salinity, nutrient content, and dissolved oxygen concentration. Many of the ships have space to allow for the addition of instruments that are necessary for other observations of a similar nature.

Biological studies are not routinely performed. However, many ships have winches that make it possible to use two nets or other equipment that may be lowered into the sea to collect biological specimens. Usually, a visiting scientist must obtain biological data without technical assistance. The number of officers and scientists aboard a given ship will vary according to the ship's assignment.

All ships are equipped with navigational control of the highest accuracy available.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

The following of ESSA's larger ships are capable of serving as platforms for some types of data acquisition for research purposes:

Base	Name and Type	Displacement Cruising Speed Endurance	Professional Complement Capacity
Jacksonville	1. DISCOVERER - Specifically designed and equipped for comprehensive deep sea oceanographic surveys	3805 L.T. 16 kts. 35 days	5 Operations 9 Data Acquisition 17 Visiting Scientists
	2. OCEANOGRAPHER - (similar to the Discoverer)		
Seattle	3. SURVEYOR - Hydrographic Survey Ship - limited oceanographic capabilities	3150 L.T. 15 kts. 50 days	5 Operations 9 Data Acquisition 8 Visiting Scientists
Seattle	4. PATHFINDER - Hydrographic Survey Ship - limited oceanographic capabilities	2000 L.T. 12 kts. 14 days	4 Operations 9 Data Acquisition 4 Visiting Scientists
Jacksonville	5. FAIRWEATHER - Hydrographic Survey Ship - limited oceanographic capabilities	1615 L.T. 14.5 kts. 24 days	3 Operations 8 Data Acquisition 4 Visiting Scientists
	6. MT MITCHEL-(similar to Fairweather)		
	7. RANIER - (similar to Fairweather)		

9. Comment and Publication References:

*from Item 6a: Funding of operation of ships is through operational programs. Funding for visiting scientists would be reimbursable.
For further information about utilization of ESSA ships for research purposes, please contact Administrator, Environmental Science Services Administration, 6010 Executive Blvd., Rockville, Md.20852, or Director, Oceanographic Laboratories, 901 South Miami Ave., Miami, Fla, 33130.
For more specific information about ships, their capabilities, and equipments, please contact ESSA, Coast & Geodetic Survey, 6001 Executive Blvd., Rockville,Md. 20852.

Additional information on these ships can be found in Vol.III, OCEANOGRAPHIC VESSELS OF THE WORLD, National Oceanographic Data Center, 1966.

10. DATE OF REPORT: December 19, 1969

SATELLITE EXPERIMENT LABORATORY
INSTALLATION

COMMERCE (ESSA)
AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Harold W. Yates
A. TECHNICAL DIRECTOR: Harold W. Yates

3. LOCATION: Federal Office Bldg.4
A. Suitland (Nearest City)
B. Prince Georges (County)
C. Maryland (State)

4. P. O. ADDRESS: National Environmental Satellite Center, Environmental Science Svcs.Adm.
A. Washington (City)
B. D.C. (State)
C. 20233 (Zip Code)
D. (301)440-7137 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 20
B. ALL OTHER PERSONNEL (Total): 48

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,480,000
B. EXTRAMURAL (Total): $ 650,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts basic design and engineering development of meteorological satellite sensor systems to provide new or improved measurements of environmental parameters of use in weather analysis and forecasting (22-02, 04-01, 04-02).

Major emphasis at present is on the program for design and development of new and improved sensors to measure vertical distribution of temperature, water vapor and aerosols in the atmosphere (vertical temperature profile radiometer) [22-02,04-01, 04-02).

Conducts research in basic properties of the atmosphere, particularly radiative properties, as required for design of satellite sensory systems (04-01).

More specifically, projects are underway in making better determinations in the laboratory of the absorptivity of carbon dioxide in the 15 micron band and of water vapor in the 20-30 micron band. (04-02).

A. ADDITIONAL COSATI CODES:

None

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

The Laboratory has time-share use of ESSA-owned CDC 6600 computer facility.

9. COMMENT AND PUBLICATION REFERENCES:

None

10. DATE OF REPORT:
November 21, 1969

SYSTEMS DEVELOPMENT OFFICE
INSTALLATION

COMMERCE (ESSA)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Mr. Merritt N. Techter
8030 16th St.
A. TECHNICAL DIRECTOR: Mr. Merritt N. Techter

3. LOCATION: A. Silver Spring (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: Weather Bureau, Systems Development Office, 8060 13th Street
A. Silver Spring (City) B. Maryland (State) C. 20910 (Zip Code) D. 301-495(179)-2300 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 62
B. ALL OTHER PERSONNEL (Total): 43

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,770,300
B. EXTRAMURAL (Total): $ 413,500

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

FUNCTIONS: The Systems Development Office conducts applied research and development in three areas: equipment, observing techniques, and forecasting techniques. The office also conducts planning and analysis activities related to the applied research and development functions.

ACTIVITIES: (1) Planning and Analysis:

a. An automatic phone system analytical planning model was developed to assist Weather Bureau field stations (04-02 Atmospheric Sciences - meteorology).
b. An analysis of merchant ship traffic on the high seas was performed to assess their use in a global weather observing system (04-02 Atmospheric Sciences - meteorology).
c. A systems engineering study of atmospheric measurement and equipment (SESAME) was completed as a major step toward developing a new upper-air observing system (04-02 Atmospheric Sciences - meteorology).

(2) Equipment:

a. A prototype Manual Input Device was developed for use with the Automatic Meteorological Observing Station, AMOS III-70 (04-02 Atmospheric Sciences - meteorology).
b. Experiments were conducted to assess the feasibility of using LORAN-C and OMEGA navigational aids to measure winds aloft (04-02 Atmospheric Sciences - meteorology).
c. A prototype model of a radiotheodolite range/angle digitizer was designed and developed to assist in partially automating upper-air observing computations (04-02 Atmospheric Sciences - meteorology).

(3) Forecasting Techniques:

a. An automated ocean wave forecasting program was developed, tested and implemented operationally (04-02 Atmospheric Sciences - meteorology).
b. Improvements were made in the output products from SAM, the subsynoptic advection model, which predicts precipitation and sea level pressure in the eastern half of the U.S. for up to 17 hours in advance (04-02 Atmospheric Sciences - meteorology).

A. ADDITIONAL COSATI CODES:

None

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Standard laboratory engineering and test instrumentation.

For further information, contact Mr. John Lovkay, Jr., area code 301-495-2434.

9. COMMENT AND PUBLICATION REFERENCES:

This office is responsible for the technical direction and administration of three Laboratories and one Division. These are:

(1) Techniques Development Laboratory
(2) Equipment Development Laboratory
(3) Test and Evaluation Laboratory (documented separately)
(4) Systems Plans and Design Division

Publication: "ESSA Science and Engineering," U.S. Department of Commerce, April 1968.

10. DATE OF REPORT: September 1969

TEST AND EVALUATION LABORATORY
INSTALLATION

COMMERCE (ESSA)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Mr. William E. Eggert
A. TECHNICAL DIRECTOR: Mr. William E. Eggert

3. LOCATION: A. Sterling (Nearest City) B. Loudoun (County) C. Virginia (State)

4. P. O. ADDRESS: Weather Bureau, Test and Evaluation Laboratory, RD-1 Systems Development Office
A. Sterling (City) B. Virginia (State) C. 22170 (Zip Code) D. 703-471-4499 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 11
B. ALL OTHER PERSONNEL (Total): 18

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 528,000
B. EXTRAMURAL (Total): $ 45,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

FUNCTIONS:

At its Sterling, Virginia facilities, the Test and Evaluation Laboratory carries out the test and evaluation aspects of the equipment research and development program. It also has responsibility for developing methods for processing sensed signals (measurables) to derive the desired output of the data acquisition subsystem (observations). The laboratory maintains the 400-acre site and its facilities.

ACTIVITIES:

The basic AMOS III-70 station successfully completed environmental testing (except the precipitation occurrence sensor) and was adjudged fully suitable from an engineering standpoint (04-02 Atmospheric Sciences - meteorology).

Land and sea testing of three Scanwell Corporation prototype antenna systems was made to meet the Barbados Meteorological Experiment (BOMEX) project requirements. Sea tests showed conclusively that the Windfinding at Sea System developed was capable of providing wind data comparable to that provided by standard shore-based balloon sounding equipment (04-02 Atmospheric Sciences - meteorology).

Test and evaluation of an Electrolyser Model M-28 Electrolytic Hydrogen Generator for field use by the Weather Bureau was completed. The tests showed that the generator is capable of producing hydrogen in sufficient quantity and quality, but it is more costly than bottled hydrogen within the contiguous U.S. (04-02 Atmospheric Sciences - meteorology).

Tests and evaluations of a flash-flood alarm and other systems for the hydrologic field services operations were conducted (04-02 Atmospheric Sciences - meteorology).

Under a reimbursable agreement with the Federal Aviation Agency (FAA), a number of equipment studies and tests was performed (04-02 Atmospheric Sciences - meteorology).

A. ADDITIONAL COSATI CODES:

None

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

In addition to the standard test instrumentation, an environmental chamber (8'x10'x8') has recently been installed at the Test and Evaluation Laboratory's site in Sterling, Virginia. The temperature in the chamber can be varied from -80°F to +150°F; relative humidity from 10% to 99%; wind speed from 0 to 1760 feet per minute; and, liquid precipitation from 0 to 4 inches per hour.

For further information, contact Mr. W. E. Eggert, area code 703-471-4499.

9. COMMENT AND PUBLICATION REFERENCES:

The Test and Evaluation Laboratory is one of four components of the Systems Development Office. The latter may be contacted in the following manner:

Mr. Merritt N. Techter
Weather Bureau
Systems Development Office
8060 13th Street
Silver Spring, Maryland 20910

Tel. 301-495-2300

Publication References: None

10. DATE OF REPORT: September 1969

WAVE PROPAGATION LABORATORY
INSTALLATION

COMMERCE (ESSA)
AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Richard K. Cook
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Washington, D. C. (Nearest City) B. ----- (County) C. ---- (State)

4. P. O. ADDRESS: WAVE PROPAGATION LAB, Geoacoustics Research Group, ESSA
A. Rockville (City) B. Maryland (State) C. 20852 (Zip Code) D. 202-362-7205 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 8
B. ALL OTHER PERSONNEL (Total): 7

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 867 thousand
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts theoretical and experimental measurements on the generation and propagation of infrasonic waves through the atmosphere, and on the interactions between sound waves and geophysical phenomena. The results of this research are used for deducing fundamental physical properties of the atmosphere, the earth and the oceans (20-01 physics--generation and propagation of acoustic waves).

A. ADDITIONAL COSATI CODES: 17-01 Acoustic Detection

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

9. COMMENT AND PUBLICATION REFERENCES:

ESSA Science and Engineering, July 13, 1965 to June 30, 1967, ESSA, Department of Commerce, April 1968.

10. DATE OF REPORT: September 29, 1969

NATIONAL BUREAU OF STANDARDS
INSTALLATION

DEPARTMENT OF COMMERCE
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Dr. Lewis M. Branscomb A. TECHNICAL DIRECTOR: * See item 9.

3. LOCATION: A. Gaithersburg (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: National Bureau of Standards

   A. Washington (City) B. D.C. (State) C. 20234 (Zip Code) D. (301) 921-1000 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   - A. R&D PROFESSIONALS (Total): 1549
   - B. ALL OTHER PERSONNEL (Total): 2516

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   - A. INTRAMURAL (Total): $ 65,100,000
   - B. EXTRAMURAL (Total): $ 1,550,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes): NBS functions encompass exploratory and applied research necessary for the support and achievement of: (1) nationally and internationally compatible coherent standards for physical quantities; (2) tie-points, calibration services, measurement techniques for nation-wide compatible dissemination. Weights and measures standards and consulting advice to the States; (3) the characterization of materials to provide basis for reproducible property measurements; (4) the determination of physical constants and properties for materials, simple and composite, of scientific or industrial importance; (5) an adequate technical basis for consulting advice to voluntary standards bodies for engineering design and performance characteristics and standards and devices and products and systems; (6) methods for testing materials, mechanisms, and structures; and (7) special R&D for other agencies of Government utilizing unique NBS competences.

   To carry out these functions NBS has the following technical components whose activities are described individually in separate reports.

   Institute for Basic Standards, Gaithersburg, Md.
   Institute for Materials Research, Gaithersburg, Md.
   Institute for Applied Technology, Gaithersburg, Md.
   Center for Radiation Research, Gaithersburg, Md.
   Center for Computer Sciences and Technology, Gaithersburg, Md.
   Institute for Basic Standards, Boulder, Colorado

   A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT: Environmental Chambers - 40'x50'x30' in which a complete dwelling can be placed and tested for heat transfer, heating and cooling systems, insulation, etc. Temperature can be controlled from 150°f to -55°f with complete air and humidity control.

Engineering Mechanics Laboratory - Dead weight machines/ Compression and tension load capacity from 10 to 1,000,000 lbf. 12,000,000 lbf testing machine - compression specimens up to 60 ft. long, tension specimens up to 55 ft. long and flexural specimens up to 90 ft. long.

Nuclear Reactor - A 10-megawatt, heavy water moderated research reactor with split fuel elements, a 20K cold neutron facility, nine regular beam tubes, two tangential tubes, a thermal column, ten vertical thimbles, and four pneumatic tubes. Maximum thermal neutron flux is 1.7×10^{14} neutrons/cm^2sec and maximum fast neutron flux is 1.2×10^{14} neutrons/cm^2sec.

Electron Linear Accelerator - Energy range 10 to 160 MeV, beam power in excess of 50 kilowatts, three experimental rooms and a future above-ground neutron time-of-flight facility.

Diffraction Facilities (x-ray, electron, low energy electron, neutron, Kössel)

Mass Spectrometry Facilities (analytical, precise molecular weight, chemical reactions)

Long path interferometer - 30 meter interferometer used with laser for measurement of speed of light. Also used as seismometer.

Cross-atomic beam apparatus - Used in studies of energy levels of atoms and molecules.

UNIVAC 1108.

9. COMMENT AND PUBLICATION REFERENCES:

Information about the current organization and activities of the Bureau is available in greater detail in the annual report, NBS Technical Highlights. A history of the National Bureau of Standards is given in Measures for Progress. Both publications are available from the Government Printing Office. Information about NBS publications in general can be obtained from the Office of Technical Information and Publications, NBS, Washington, D.C. 20234.

*Comment on item 2a:

Individual directors for each of the institutes and centers are shown on their separate listings.

10. DATE OF REPORT: November 20, 1969

CENTER FOR COMPUTER SCIENCES AND TECHNOLOGY
INSTALLATION

DEPARTMENT OF COMMERCE (NBS)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Dr. Lewis M. Branscomb
A. TECHNICAL DIRECTOR: Dr. H.R.J. Grosch

3. LOCATION: A. Gaithersburg (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: National Bureau of Standards
A. Washington (City) B. D.C. (State) C. 20234 (Zip Code) D. (301) 921-3525 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 86
B. ALL OTHER PERSONNEL (Total): 55

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 4,820,000
B. EXTRAMURAL (Total): $ -0-

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes): The Center for Computer Sciences and Technology conducts research and provides technical services designed to aid Government agencies in improving cost effectiveness in the conduct of their programs through the selection, acquisition, and effective utilization of automatic data processing equipment and serves as the principal focus within the Executive Branch for the development of Federal standards for automatic data processing equipment, techniques, and computer languages. To accomplish this the Center:

- Performs research and analysis for the development of recommendations for Federal information processing standards. These include software, codes for information interchange, devices and storage media. (09-02 Electronics and Electrical Engineering - Computers; 14-03 Methods and Equipment - Recording Devices; 17-05 Navigation, Communications, Detection and Countermeasures - Infrared and Ultraviolet Detection.)

- Provides comprehensive, consolidated, single-point-of-contact information services on scientific and technical activities related to computer sciences and technology. (05-02 Behavioral and Social Sciences - Documentation and Information Technology.)

- Provides technical consultative and advisory services to government agencies on automatic data processing and related technology. (09-02 Electronics and Electrical Engineering - Computers; 14-03, 14-05 Methods and Equipment - Recording Devices - Reprography; 17-02, 17-07 Navigation, Communications, Detection and Countermeasures - Communications - Navigation and Guidance.)

- Does applied research and engineering for solving special problems in the broad automatic data processing field. (04-01 Atmospheric Sciences - Atmospheric Physics; 05-05 Behavioral and Social Sciences - Human Factors Engineering; 06-04 Biological and Medical Sciences - Bionics; 14-02, 14-05 Methods and Equipment - Laboratories, Test Facilities, and Test Equipment - Reprography; 17-05 Navigation, Communications, Detection and Countermeasures - Infrared and Ultraviolet Detection.)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

UNIVAC 1108

MOBIDIC B

Magnetic Tape Testing Lab

State-of-the-Art Displays

9. COMMENT AND PUBLICATION REFERENCES:

These activities are supported by general NBS services: fiscal, personnel, library, shops, transportation, plant, supply, etc. Personnel in these service areas are not included in the entries under item 5.

Information about the current organization and activities of the laboratory is available in greater detail in the annual report, NBS Technical Highlights, available from the Government Printing Office.

10. DATE OF REPORT: November 20, 1969

CENTER FOR RADIATION RESEARCH
INSTALLATION

DEPARTMENT OF COMMERCE (NBS)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Lewis M. Branscomb A. TECHNICAL DIRECTOR: Dr. Carl O. Muehlhause

3. LOCATION: A. Gaithersburg (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: National Bureau of Standards

A. Washington (City) B. D.C. (State) C. 20234 (Zip Code) D. (301) 921-2551 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 94

B. ALL OTHER PERSONNEL (Total): 78

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 5.1 million

B. EXTRAMURAL (Total): $ -0-

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes): The Center for Radiation Research constitutes a prime resource within the Bureau for the application of radiation both to Bureau mission problems and to those of other agencies and other institutions. It develops improved techniques and instruments for detecting and measuring ionizing radiation, obtains basic data on the interactions of radiation with matter, and investigates the structure of the various forms of matter. Maintains radiation sources and standards for providing national services essential to industrial, medical and research applications. (06-18 Biological and Medical Sciences - Radiobiology and Dosimetry; 18-04 Nuclear Science and Technology - Nuclear Instrumentation, 18-06 Radiation Shielding and Protection and Materials Transmission and Absorption, 18-08 Radioactivity, and 18-09 Reactor Engineering and Operation; 20-07 Physics - Particle Accelerators, and 20-08 Particle Physics)

The Center conducts work on the theory of nuclear structure, elementary particles, and radiation interactions (20-08 Physics - Particle Physics); electron- and photon-induced reactions leading to charged particle or neutron emission (18-08 Nuclear Science and Technology - Radioactivity); crystal and magnetic structure analysis (20-12 Physics - Solid State Physics); elastic and inelastic electron scattering from atoms and nuclei (20-08 Physics - Particle Physics); measurement of neutron cross sections (20-08 Physics - Particle Physics and Nuclear Reactions); and development of high-energy electron and photon absorbed-dose standards (06-18 Biological and Medical Sciences - Radiobiology and Dosimetry).

A. ADDITIONAL COSATI CODES: 07-05 Chemistry - Radio and Radiation Chemistry
18-10 Nuclear Science and Technology - Reactor Materials - Structural Material

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Nuclear Reactor: A 10-megawatt, heavy water moderated research reactor with split fuel elements, a 20K cold neutron facility, nine regular beam tubes, two tangential tubes, a thermal column, ten vertical thimbles, and four pneumatic tubes. Maximum thermal neutron flux is 1.7×10^{14} neutrons/cm^2sec and maximum fast neutron flux is 1.2×10^{14} neutrons/cm^2sec.

Electron Linear Accelerator: Energy range 10 to 160 MeV, beam power in excess of 50 ilowatts, three experimental rooms and a future above-ground neutron time-of-flight facility.

Three High-Current Electron Accelerators: A 4 MeV, 1 milliampere Van de Graaff accelerator; a 1.5 MeV, 10 milliampere Dynamitron electron accelerator; a 0.5 MeV, 1 milliampere transformer-rectifier accelerator.

Also, a 2 MeV positive-ion Van De Graaff accelerator; an isotope separator facility; a 180 MeV electron synchrotron; and numerous intense gamma-ray sources ranging from millicuries to 25 kilocuries.

9. COMMENT AND PUBLICATION REFERENCES:

These activities are supported by general NBS services: fiscal, personnel, library, shops, transportation, plant, supply, etc. Personnel in these service areas are not included in the entries under item 5.

Information about the current organization and activities of the laboratory is available in greater detail in the annual report, NBS Technical Highlights, available from the Government Printing Office.

The Center is intended to serve national needs as well as the immediate needs of the National Bureau of Standards, and considerable use by outside organizations from industry, universities, and other Government agencies is planned for and welcomed.

Brochures available from NBS:

1. NBS Center for Radiation Research
   Facilities, programs, opportunities for cooperative and collaborative work.
2. NBS Radiation Physics Laboratory
   Facilities, programs, services, general resources.
3. NBS Reactor
   Utilization, description, specifications, experimental facilities.

10. DATE OF REPORT: November 20, 1969

INSTITUTE FOR APPLIED TECHNOLOGY
INSTALLATION

COMMERCE (NBS)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Dr. Lewis M. Branscomb
   A. TECHNICAL DIRECTOR: Dr. Howard E. Sorrows

3. LOCATION: A. Gaithersburg (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: National Bureau of Standards
   A. Washington (City) B. D.C. (State) C. 20234 (Zip Code) D. (301) 921-3434 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 240
   B. ALL OTHER PERSONNEL (Total): 300

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 12.1 million
   B. EXTRAMURAL (Total): $ 1.1 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes): The Institute for Applied Technology provides technical services to promote the use of available technology and to facilitate technological innovation in industry and Government. The Institute also maintains cooperation with public and private organizations leading to the development of technological standards (including mandatory safety standards), codes, and methods of test; and provides technical advice and services to Government agencies upon request.

Major activities include:

Product Evaluation: The evaluation of products and materials for specification criteria, test methods and reference terminology. (06-01, 06-06; 07-04: 11-01, 11-04, 11-05, 11-07, 11-09, 11-10, 11-12; 14-03; 22-02.)

Building Research: The definition of performance requirements of building materials elements and whole structures and the conduct of research to develop measurement techniques needed by those who establish performance specifications, codes and standards. (04-01; 06-06, 06-09; 07-04; 08-13; 11-01, 11-02, 11-03, 11-09; 13-01, 13-02, 13-12, 13-13; 14-01; 20-01; 21-02.)

Electronic Technology: The development of performance criteria and test methods for electronic instruments, devices, and their materials. (06-02; 09-01, 09-03, 09-05, 09-06; 10-01; 11-04, 11-06; 13-08; 15-03; 17-02; 20-02, 20-03, 20-13.)

Technical Analysis: Systems analysis, operations research, benefit-cost evaluations, multi-disciplinary studies, etc. (05-03, 05-05, 05-08; 12-02; 13-02; 14-01.)

Vehicle Systems Research: Tire braking and occupant restraint systems testing methods and standards development. (06-02, 06-07, 06-11, 06-19; 07-04; 10-01; 11-01, 11-05, 11-08, 11-10.)

A. ADDITIONAL COSATI CODES: 09-02, 09-04; 13-06; 14-02; 20-06, 20-11; 21-06

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Environmental Chambers:

(1) 40' x 50' x 30' in which a complete dwelling can be placed and tested for heat transfer, heating and cooling systems, insulation, etc. Temperature can be controlled from 150°f to -55°f with complete air and humidity control.

(2) 3 smaller chambers for similar but smaller testing.

6 outdoor "weathering" sites throughout the United States.

A mobile acoustics laboratory van.

A mobile fire research laboratory van.

3 fire research furnaces for testing fire endurance, fire test methods and fire resistive building components.

Automobile Testing Facilities:
- Inertia brake dynometer
- Tire Endurance Lab. Wheel
- Tire Uniformity Machine
- Dynamic Test Sled
- Benson-Lehner "Oscar" for Automatic Measurement of Kinetic Motion

Availability of scanning electron microscope.

9. COMMENT AND PUBLICATION REFERENCES:

These activities are supported by general NBS services: fiscal, personnel, library, shops, transportation, plant, supply, etc. Personnel in these service areas are not included in the entries under item 5.

At the present time the Vehicle Systems Research program is completely supported by the Department of Transportation. The research is performed under the direction of the Office of Vehicle Systems Research, NBS, Washington, D.C. 20234, (202) 362-4040 ext. 7095.

Information about the current organization and activities of the laboratory is available in greater detail in the annual report, NBS Technical Highlights, available from the Government Printing Office.

10. DATE OF REPORT: November 20, 1969

INSTITUTE FOR BASIC STANDARDS/BOULDER
INSTALLATION

DEPARTMENT OF COMMERCE (NBS)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. E. Ambler
A. TECHNICAL DIRECTOR: B. W. Birmingham

3. LOCATION: A. Boulder (Nearest City) B. Boulder (County) C. Colorado (State)

4. P. O. ADDRESS: National Bureau of Standards, 325 So. Broadway
A. Boulder (City) B. Colorado (State) C. 80302 (Zip Code) D. (303) 447-3237 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 220
B. ALL OTHER PERSONNEL (Total): 340

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 10,670,000
B. EXTRAMURAL (Total): $ 130,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes): The Boulder Laboratories of the Institute for Basic Standards consists of the: Cryogenics Division, Laboratory Astrophysics Division, Radio Standards Physics Division, Radio Standards Engineering Division, Time and Frequency Division, and administrative support units. These divisions engage in:

The study of plasma phenomena by the use of electromagnetic techniques; research in quantum electronics related to laser and atomic beam standards; and research on the interaction of radiation with solids with emphasis on such devices as solid state detectors, crystal modulators, and IR sources. (07-04 Chemistry; 15-03 Military Sciences; 17-05 Navigation, Communications, Detection and Countermeasures; 20-03, 20-05, 20-09, 20-12 Physics.)

Research, development, and engineering to advance the fields of electromagnetic metrology at high frequencies as well as microwave and millimeter wave frequencies. (06-02, 06-18 Biological and Medical Sciences; 09-03, 09-05, 09-06 Electronics and Electrical Engineering; 15-03, 15-04 Military Sciences; 17-02.1, 17-04, 17-09 Navigation, Communications, Detection and Countermeasures; 20-03, 20-14 Physics.)

Research to provide frequency and time interval standards and to develop methods and instrumentation for dissemination of frequency and time standards. (01-02, 01-05 Aeronautics; 15-03 Military Sciences; 17-02.1, 17-07 Navigation, Communications, Detection and Countermeasures; 20-03, 20-05, 20-14 Physics.)

Research in atomic and molecular physics and astrophysical phenomena with emphasis on quantitative prediction and experimental determination of collisional interactions. (03-02 Astronomy and Astrophysics; 08-05 Earth Sciences and Oceanography; 20-08, 20-09 Physics.)

Research in cryogenic metrology and fluid transport systems; determines low temperature properties of solids, fluids, and systems. (06-02 Biological and Medical Sciences; 09-03 Electronics and Electrical Engineering; 15-04 Military Sciences; 20-04, 20-12, 20-13 Physics; 21-09.1 Propulsion and Fuels.)

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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196 8. MAJOR EQUIPMENT:

Long path interferometer: 30 meter interferometer used with laser for measurement of speed of light. Also used as seismometer.

Cross-atomic beam apparatus: Used in studies of energy levels of atoms and molecules.

NBS frequency standard and time scale system: Cs beam primary standard of frequency, and related electronic systems for dissemination of time.

Standard-frequency and time broadcast facilities in Colorado and Hawaii: WWV, WWVB, WWVL, WWVH stations for broadcasting standard time and frequency signals.

Precision measurement antenna range facilities.

Electronic Calibrations Center: Measurement systems for state-of-the-art determination of electromagnetic quantities.

Equipment systems for low temperature measurement of thermodynamic properties of fluids; transport properties of solids; mechanical properties.

Millikelvin refrigeration system: Low range to 0.012 K.

Cryogenic flowmetering research facility: Flow capacity 300 gallons per minute.

Slush cryogens facility: Slush hydrogen, methane, and natural gas.

Facility for measuring heat transfer to helium at low termperatures.

Methane stabilized helium-neon laser at 3.39 microns.

Laser power and energy calibration system.

9. COMMENT AND PUBLICATION REFERENCES:

1. Technical Highlights of the NBS (Annual Report)
2. Calibration and Test Services of the NBS
3. Standard References Materials Issued by the NBS
4. NBS Frequency and Time Broadcast Services - SP236
5. Time and Frequency Services Bulletin No. 142
6. Additional information is available through the Office of Program Coordination.

10. DATE OF REPORT: November 20, 1969

INSTITUTE FOR BASIC STANDARDS
INSTALLATION

COMMERCE (NBS)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Dr. Lewis M. Branscomb
   A. TECHNICAL DIRECTOR: Dr. E. Ambler

3. LOCATION: A. Gaithersburg (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: National Bureau of Standards
   A. Washington (City) B. D.C. (State) C. 20234 (Zip Code) D. (301) 921-3301 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 314
   B. ALL OTHER PERSONNEL (Total): 162

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 13,775,000
   B. EXTRAMURAL (Total): $ 40,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes): The Institute for Basic Standards provides the central basis within the United States of a complete and consistent system of physical measurement; coordinates that system with measurement systems of other nations; and furnishes essential services leading to accurate and uniform physical measurements throughout the Nation's scientific community, industry, and commerce. Its activities include theoretical and experimental, exploratory and applied R&D in the following principal areas of activity:

Measurement Services - Promotes uniform practices and evaluates compatability, consistency, and transferability in the measurement processes. (12-01; 14-02, 14-04.)

Mathematics - Numerical analysis, operations research, statistical engineering, systems dynamics. (12-01, 12-02; 14-04.)

Electricity - Resistance and reactance, electrochemistry, electrical instruments, absolute electrical measurements. (07-04; 09-01, 09-05; 10-03; 14-02; 20-03, 20-12.)

Metrology - Photometry, image optics and photography, spectrophotometry, length, engineering metrology, mass and volume. (13-01, 13-09; 14-02, 14-05; 17-05, 17-07; 20-06.)

Mechanics - Sound, vibration, and humidity measurements, engineering mechanics, rheology, fluid meters, hydraulics, aerodynamics. (04-02; 13-05, 13-13; 14-02; 17-01; 20-01, 20-04, 20-11.)

Heat - Cryogenic physics, equation of state, statistical physics, pressure measurements, temperature, radiation thermometry. (14-02; 17-05; 20-09, 20-12, 20-13.)

Atomic and Molecular Physics - Spectroscopy, infrared spectroscopy, far ultraviolet physics, molecular spectroscopy, electron physics, atomic physics, plasma spectroscopy, vacuum measurements. (03-02; 07-04, 14-02; 17-05; 20-06, 20-08, 20-09.)

Typical areas of research in 1969 were stability improvement in pyrometry strip lamps, vapor pressure for the neons, radio line spectra of OH, and evaluation of linear least squares computer programs.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Engineering Mechanics Laboratory - Dead weight machines. Compression and tension load capacity from 10 to 1,000,000 lbf. 12,000,000 lbf testing machine - compression specimens up to 60 ft. long, tension specimens up to 55 ft. long and flexural specimens up to 90 ft. long.

Non-Magnetic Laboratory - Located in weak uniform local field. Direct connection with National Ampere.

Synchrotron Light Facility - Far ultraviolet continuum source.

Tape Measureing Facility - Calibration of tapes up to 50 meters.

Fluid Mechanics Laboratory - Air flow metering up to 3,000 SCFM.

Line Scanning Interferometer - Compares line link standards with International Unit of Length.

High Resolution Atomic Spectrographic Facility - 500 angstrom to 10,000 angstrom.

Sound Laboratory - Anechoic Room 22' x 22' x 33' working volume - Reverberation Room 20' x 25' x 30' working volume.

Generator - 1400 KV d.c.
- 2 megavolt Marx

One million V a.c. testing transformer.

9. COMMENT AND PUBLICATION REFERENCES:

These activities are supported by general NBS services: fiscal, personnel, library, shops, transportation, plant, supply, etc. Personnel in these service areas are not included in the entries under item 5.

The high voltage portion of the electricity activity is physically located at the former NBS site in Washington, D.C. This is currently being evaluated and may be placed on a standby basis.

Information about the current organization and activities of the laboratory is available in greater detail in the annual report, NBS Technical Highlights, available from the Government Printing Office.

10. DATE OF REPORT: November 20, 1969

INSTITUTE FOR MATERIALS RESEARCH
INSTALLATION

DEPARTMENT OF COMMERCE (NBS)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Lewis M. Branscomb
A. TECHNICAL DIRECTOR: Dr. John D. Hoffman

3. LOCATION: A. Gaithersburg (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: National Bureau of Standards
A. Washington (City) B. D.C. (State) C. 20234 (Zip Code) D. (301) 921-2828 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 373
B. ALL OTHER PERSONNEL (Total): 128

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 14,000,000
B. EXTRAMURAL (Total): $ --

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes): Assists and stimulates industry in the development of new and improved products and the full utilization of existing products by supplying increased understanding of basic properties of materials. The Institute (a) develops, produces, and distributes standard reference materials which provide a basis for calibration of instruments and equipment, comparison of measurements on materials, and aid in the control of production processes in industry; (b) conducts research on the fundamental properties of matter and materials which are of importance to science, industry, and commerce as well as to the collection and dissemination of data on these properties; (c) develops techniques for the preparation of special research materials and for the measurement of their properties; (d) develops criteria by which the performance characteristics of materials may be evaluated; (e) provides advisory and research services for other agencies; and (f) assists national and international standardization organizations in developing methods of measurement and establishing standards for materials.

Significant programs are concentrated in the fields of analytical chemistry, polymers, metallurgy, inorganic materials, and physical chemistry, including biomaterials. (07-03, 07-04, 07-05 Chemistry - Organic, Physical, and Radio and Radiation Chemistry; 11-04, 11-07, 11-09, 11-10, 11-12 Materials - Composite Materials, Fibers and Textiles, Plastics, Rubber, Wood and Paper Products, and Miscellaneous Materials; 18-02 Nuclear Science and Technology - Isotopes; 20-02, 20-03, 20-05, 20-06, 20-10, 20-12, 20-13 Physics - Crystallography, Electricity and Magnetism, Masers and Lasers, Optics, Quantum Theory, Solid State Physics, and Thermodynamics.)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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200 8. MAJOR EQUIPMENT:

Diffraction Facilities (x-ray, electron, low energy electron, neutron, Kossel)

Mass Spectrometry Facilities (analytical, precise molecular weight, chemical reactions)

Spectrometry (infra-red, ultra-violet, soft x-ray, NMR, ESR)

Microscopy Facilities (scanning electron, optical, electron microscope, electron microprobe, field emission)

Polymer Characterization Facilities (molecular weight, degradation, etc.)

Analytical Chemistry Facilities (very broad coverage)

Specimen Preparation Facilities (inorganics, metals, alloys)

Metallurgical Mechanical Testing Facilities

9. COMMENT AND PUBLICATION REFERENCES:

These activities are supported by general NBS services: fiscal, personnel, library, shops, transportation, plant, supply, etc. Personnel in these service areas are not included in the entries under item 5.

Information about the current organization and activities of the laboratory is available in greater detail in the annual report, NBS Technical Highlights, available from the Government Printing Office.

10. DATE OF REPORT: November 20, 1969

Department of Defense

INSTITUTE FOR DEFENSE ANALYSES — INSTALLATION

DOD — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: President: Alexander Flax
A. TECHNICAL DIRECTOR: Vacant

3. LOCATION: A. Arlington (Nearest City) B. Arlington (County) C. Virginia (State)

4. P. O. ADDRESS: 400 Army-Navy Drive
A. Arlington (City) B. Va. (State) C. 22202 (Zip Code) D. 703- 558-1701 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 259
B. ALL OTHER PERSONNEL (Total): 365

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 11,700,000
B. EXTRAMURAL (Total): $ 80,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

IDA is primarily a software organization involved in performing systems analyses and operations evaluations for OSD including the JCS, DDR&E and WSEG in such areas as strategic weapons; command, control, and operational support including military transportation and logistics; and tactical warfare. Studies are also performed in the physical sciences and engineering areas.

12-01	Mathematical Sciences	- Mathematics and Statistics
12-02	" "	- Operations Research
14-01	Methods and Equipment	- Cost Effectiveness
15-05	Military Sciences	- Logistics
15-07	" "	- Operations, Strategy, and Tactics

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

CDC 1604 Computer

9. COMMENT AND PUBLICATION REFERENCES:

Detailed References: (a) U.S. Congress, House of Representatives, Committee on Government Operations, Military Operations Subcommittee, Systems Development and Management, Hearings, June 21-August 31, 1962, (87th Congress, 2d Session) (Washington: U. S. Govt. Print. Off., 1962), pp. 615-635; (b) Institute for Defense Analyses, The Tenth Year, March 1965 through February 1966, (Arlington, Virginia, 1966), 31 p.; (c) Institute for Defense Analyses, Annual Report: Institute for Defense Analyses (1st Report, n.d.), 18 p.; Institute for Defense Analyses, Annual Report: March 1966 through February 1967, (Arlington, Virginia, December 1967), 44 p.

10. DATE OF REPORT: 30 September 1969

6571 AEROMEDICAL LABORATORY
INSTALLATION

DOD (AIR FORCE)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Colonel R. G. McIver
A. TECHNICAL DIRECTOR: Dr. H. J. Vonbeckh

3. LOCATION: A. Alamogordo (Nearest City) B. Otero (County) C. New Mexico (State)

4. P. O. ADDRESS: 6571 Aeromedical Laboratory
A. Holloman AFB (City) B. N. Mexico (State) C. 88330 (Zip Code) D. A.C. 505 473-6511 x 52950 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 33
B. ALL OTHER PERSONNEL (Total): 52

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 2.051 millions
B. EXTRAMURAL (Total): $ 1.098 millions

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

To function as a limited national primate facility.
Conduct comparative aerospace medical research in primates.
Conduct a program in neurosciences and experimental military medicine.
To evaluate impact injuries and methods to protect against such injuries.

06-03 Biol & Med Sciences - Care and Feeding of Laboratory Animals

05-08 Behav & Soc. Sci. - Man-Machine Relationships

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

AFMDC facilities computer, contrifuge, environmental chambers, aircraft impact devices daisy decelerator, bopper, hyge
Audition chamber used to evaluate experimental hearing defects.
RF shielded room used for neurophysiological studies.
Radiochemical lab a limited radioisotope lab.
Clinical labs clinical and experimental chemistry procedures
Veterinary support facilities clinic, radiology, surgery, pathology
circadian rhythms chamber temperature and humidity control
Multi animal testing consoles
Consortium housing and free ranging environment for chimpanzees
Automated sleep staging capability an analog-digital hybrid computer

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

AEROPROPULSION LABORATORY
INSTALLATION

DOD (AIR FORCE)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Col. T. P. Mott-Smith, Cmdr.   A. TECHNICAL DIRECTOR: Dr. A. E. Fuhs, Ch Sci

3. LOCATION: A. Dayton (Nearest City)   B. Montgomery (County)   C. Ohio (State)

4. P. O. ADDRESS: Air Force Aeropropulsion Laboratory
A. Wright-Patterson Air Force Base (City)   B. Ohio (State)   C. 45433 (Zip Code)   D. Area Code 513 257-1110 x 52520 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 213
B. ALL OTHER PERSONNEL (Total): 157

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 5.800 M
B. EXTRAMURAL (Total): $ 41.609 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Aero Propulsion Laboratory is a research and exploratory development laboratory consisting of five operating divisions. The Laboratory has capability and facilities to execute the AFSC exploratory and advanced development programs in the areas of air breathing propulsion systems, propellers and rotors, electric and advanced propulsion, fuels and lubricants, flight vehicle power, and associated areas. The laboratory is the AFSC focal point for information in the assigned technical areas and executes assigned projects for and works closely with Army, Navy, NASA, ARPA, and other government agencies to ensure rapid application of research and technology to advanced systems.

11-08 Materials - Oils, Lubricants, and Hydraulic Fluids
21-01 Propulsion and Fuels - Air-Breathing Engines
21-02 " " " - Combustion and Ignition
21-03 " " " - Electric Propulsion
21-04 " " " - Fuels
21-05 " " " - Jet and Gas Turbine Engines
21-07 " " " - Reciprocating Engines

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Ion engine facility-vacuum chamber 8 ft dia. by 25 feet long; arc jet test facility-vacuum chamber 7 foot dia. by 26 feet long; L shape space power vacuum and liquid metal loop facility 27 ft dia by 37 ft H; energy conversion/transfer facility-programmable battery test racks; lubricants research facility-gear rigs, bearing rig, seal test rigs; fuel research laboratory-corrosion testing, aging chambers, fuel chamber rotor test facility-1000 to 4000 hp-95 ft max dia up T2 50000 lb thrust, turbine engine test stands-10 sea level stands to 50000 lb thrust, turbine engine alt. cells to 3000 lb thrust, 50000 ft mach 1.5 propeller whirl rigs-four rigs to 30000 hp, gyroscopic test chamber, ramjet research shock tunnel-210 in. dia test section-mach 10-25, 8 MS ramjet research lab-true sim to mach 6 at 120000 ft hydrogen, liquid air.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

AEROSPACE CORPORATION
INSTALLATION

DOD (Air Force)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR: Aerospace Corporation

2. DIRECTOR: Dr. Ivan A. Getting, President
A. TECHNICAL DIRECTOR: V.P., Tech. Dr. A. F. Donovan

3. LOCATION: A. El Segundo (Nearest City) B. Los Angeles (County) C. California (State)

4. P. O. ADDRESS: 2350 East El Segundo Blvd.
A. El Segundo (City) B. Calif. (State) C. 90045 (Zip Code) D. 213- 648-6464 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 1,623
B. ALL OTHER PERSONNEL (Total): 1,723

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 74,272,000
B. EXTRAMURAL (Total): $ ---

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Provide scientific and engineering support in planning, developing and directing space and ballistic missile programs. In the planning area, this support provides a sound scientific and technical foundation for proposals in planning activities such as mission analysis, technology application, and concept formulation packages, air operational systems and advanced development. Work is conducted by laboratory experimentation and analytical analyses for advancing technology and maintaining technical competence. Technical support of development programs is provided via the preparation or review of development plans, specifications and technical data.

16-04 Missile Technology - Missiles
22-01 Space Technology - Astronautics

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES
Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

CDC 6400	Computer	(Leased)
CDC 6600	"	"
IBM 360-65	"	"
IBM 360-20	"	"
IBM 360-40	"	"
SDS 930	"	"
EAI 8800	"	(Gov't Owned)
AD-4	"	" "
HYDAC-2000	"	" "

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission, functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT:

AEROSPACE MEDICAL LABORATORY
INSTALLATION

DOD (AIR FORCE)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Brig Gen Edgar Underwood
A. TECHNICAL DIRECTOR: Lt Col Fred Conrad,USAF MC

3. LOCATION: A. San Antonio (Nearest City) B. Bexar (County) C. Texas (State)

4. P. O. ADDRESS: AF Aerospace Medical Laboratory
A. Lackland AFB (City) B. Texas (State) C. 78236 (Zip Code) D. A.C. 512 671-7351 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 12
B. ALL OTHER PERSONNEL (Total): 18

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 0.581 million
B. EXTRAMURAL (Total): $ .000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Improve diagnostic methods to solve medical problems unique to USAF. Enhance USAF effectiveness by improved therapy and preventive measures. Maintain a high level of health and fitness among USAF population.

Provide USAF medical Corps research facilities to conduct medical, surgical and dental research. Maintain an operating suite with veterinary support.

06-05 Biol & Med Sciences

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Specialty laboratories in immunology, hematology infectious disease, biochemistry exercise physiology and endocrinology. Have capability to perform sophisticated assays of trace human hormones, - insulin, growth hormone, angiotensin, aldosterone, etc. - Lipid fractionation complement levels, B12 and folic acid assay, mycoplasma culture. Total capability to study exercise physiology, conditioning programs and rehabilitation. Have facilities, instrumentation and monitoring equipment to pursue research studies and develope techniques at highest level of sophistication, including ultracentrifuge, atomic absorber liquid scintillation counter, 8-channel recorders, treadmills.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

6570 AEROSPACE MEDICAL RESEARCH LABORATORY
INSTALLATION

DOD (AIR FORCE)
AGENCY OR DEPT.

213

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Colonel C. H. Kratochvil
A. TECHNICAL DIRECTOR: Dr. F. W. Berner

3. LOCATION: A. Cayton (Nearest City) B. Montgomery (County) C. Ohio (State)

4. P. O. ADDRESS: 6570 Aerospace Med. Res. Lab.
A. Wright-Patterson AFB (City) B. Ohio (State) C. 45433 (Zip Code) D. 513-255-5232 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 171
B. ALL OTHER PERSONNEL (Total): 129

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 4.962 million
B. EXTRAMURAL (Total): $ 5.604 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conduct R&D to define man's performance, physiological tolerance, personal protective needs and develop protective techniques and equipment. To sustain and enhance his performance in AF operational environments. To establish design criteria and provide support to system development in above areas.

Major functions - 1. Identify, quantify and determine toxic hazards and environmental pollution effects created by AF operations. 2. Provide new concepts, design criteria for personal protective equip.-pressure suits, G-suits, life support, restraint systems, helmets. 3. Provide human engineering data, principles and techniques applicable to design, test, operation and maintenance of AF systems and equipment. 4. Study effects, define man's tolerance and performance during biodynamic and combined stress of AF operations.

05-05	Behavioral & Social Sciences	- Human Factors Engineering
05-08	" " " "	- Man-Machine Relations
05-10	" " " "	- Physiological Psychology
06-11	Biol and Med Sciences	- Life Support
06-17	" " " "	- Protective Equip.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

214 8. MAJOR EQUIPMENT:

Major equip. - Facilities-human engineering research lab, toxic hazards research lab, research animal facility, biodynamic-noise, vibration, impact, acceleration and combined stress lab. Man rated altitude and environment chamber simulation facilities.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

AEROSPACE RESEARCH LABORATORIES
INSTALLATION

DOD (AIR FORCE)
AGENCY OR DEPT.

215

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Col. William K. Moran, Jr.
A. TECHNICAL DIRECTOR: Dr. Hans J.P. Von Ohain

3. LOCATION: A. Dayton (Nearest City) B. Montgomery (County) C. Ohio (State)

4. P. O. ADDRESS: Air Force Aerospace Research Laboratories
A. Wright-Patterson Air Force Base (City) B. Ohio (State) C. 45433 (Zip Code) D. A.C . 513 255-3724 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 178
B. ALL OTHER PERSONNEL (Total): 134

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 7.655 million
B. EXTRAMURAL (Total): $ 6.680 "

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts research in areas of physical and eng. sciences offering greatest potential to continued superiority of AF operational capability. Participates in efforts to reduce lead time between discovery of new knowledge and its application to advancement of aerospace technology.

ARL conducts and sponsors fundamental research in structures and properties of solids, chemical properties and processes, thermomechanics, high velocity fluid mechanics, aerospace simulation techniques, applied mathematics, plasma dynamics, general and nuclear physics, energy conversion and solid state physics.

10-01	Energy Conversion (Non-Propulsive) - Conversion Techniques
12-01	Mathematical Sciences - Mathematics and Statistics
20-04	Physics - Fluid Mechanics
20-07	" - Particle Acdelerators
20-08	" - Particle Physics
20-09	" - Plasma Physics
20-12	" - Solid State Physics

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Support facilities-Glass shop, machine shop, 15000 volume library, high reynolds number supersonic tunnel, 4 hypersonic wind tunnels, supersonic combustion facilities, 2 vandegraf accelerators, 8 mvict tandem accelerators, 1000 aim. ARC plasma facilities, tandem ion molecule mass spectrometer, Q-machine electron microscope, 25000 pound instron tensile test machine, capability for work at cryogenic temperatures, and capability for growth of thin platelet type 11-VI crystals of a very high degree of purity.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

AIR PROVING GROUND CENTER
INSTALLATION

DOD (AIR FORCE)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Maj Gen Jewell C. Maxwell, Comd A. TECHNICAL DIRECTOR: T. H. Dalehite, Ch Sci

3. LOCATION: A. Valpariso (Nearest City) B. Okaloosa (County) C. Florida (State)

4. P. O. ADDRESS: Air Force Air Proving Ground Center
A. Eglin Air Force Base (City) B. Florida (State) C. 32542 (Zip Code) D. Area Code 904 882-5422 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 664
B. ALL OTHER PERSONNEL (Total): 6920

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 84.889 million
B. EXTRAMURAL (Total): $ 452.886 "

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

APGC conducts research and development tests in the areas of aircraft, missiles, non-nuclear munitions, armament systems, electronic command and control systems, electromagnetic warfare devices, weapons effectiveness and probe operations. Also operates drone aircraft in support of aircraft and missile testing.

01-03 Aeronautics - Aircraft
14-02 Methods and Equipment - Laboratories, Test Facilities & Test Equipment
14-04 " " " - Reliability
15-02 Military Sciences - Chemical, Biological & Radiological Warfare
16-01 Missile Technology - Missile Launching and Ground Support
19-01 Ordnance - Ammunition, Explosives, and Pyrotechnics
19-02 " - Bombs
19-04 " - Explosions, Ballistics, and Armor
19-05 " - Fire Control and Bombing Systems
19-06 " " Guns
19-07 " - Rockets

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES
Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

218 8. MAJOR EQUIPMENT:

The Eglin complex consists of 26 instrumented bombing, rocketry or gunnery test sites within a 650 square mile area, an electromagnetic test environment consisting of a variety of victim radars, the Eglin Gulf Test Range consisting of the eastern half of the Gulf of Mexico and three intermediate test sites, a probe launch complex, an environmental test facility consisting of a main chamber 250 feet by 200 feet by 70 feet high, a photographic laboratory, a data processing facility, and an instrumentation design and fabricating facility.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

ANALYTIC SERVICES, INC. — INSTALLATION

DOD (Air Force) — AGENCY OR DEPT.

219

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☒ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: Analytic Services, Inc.

2. DIRECTOR: Dr. S. J. Lawill, Pres. A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Falls Church (Nearest City) B. Fairfax (County) C. Virginia (State)

4. P. O. ADDRESS: 5613 Leesburg Pike

A. Falls Church (City) B. Virginia (State) C. 22041 (Zip Code) D. 703- 481-2830 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 56

B. ALL OTHER PERSONNEL (Total): 37

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 1.572,000

B. EXTRAMURAL (Total): $ ---

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Provides timely and objective analytical studies relating to the cost-effectiveness, concept formulation, and technical feasibility of current and proposed weapons systems in all mission areas.

12-01	Mathematical Sciences	- Mathematics and Statistics
12-02	" "	- Operations Research
14-01	Methods and Equipment	- Cost Effectiveness

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

220 8. MAJOR EQUIPMENT:

Major equipment: None

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission, functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

ARECIBO OBSERVATORY
INSTALLATION

DOD (AIR FORCE)
AGENCY OR DEPT.

221

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☒ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: Cornell University

2. DIRECTOR: Dr. G. H. Pettengill
A. TECHNICAL DIRECTOR: Dr. G. H. Pettengill

3. LOCATION: A. Arecibo (Nearest City) B. - - (County) C. Puerto Rico (State)

4. P. O. ADDRESS: Box 995
A. Arecibo (City) B. Puerto Rico (State) C. 00612 (Zip Code) D. Area Code 809 891-1510 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 23
B. ALL OTHER PERSONNEL (Total): 224

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1.8 M
B. EXTRAMURAL (Total): $ - 0 -

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

To operate a radio astronomy - atmospheric physics telescope in Puerto Rico so that both visiting scientists and Observatory staff may perform basic research. (03-02 Astrophysics - radio astronomy) (04-01 - Ionispheric Physics).

The Observatory operates the 1000-foot telescope at Arecibo, Puerto Rico for use of all qualified scientists whose use of the facilities is approved by the Director.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

The Observatory operates the upward looking, fixed, noveable feed 1000-foot spherical reflector at Arecibo. In addition, a small antenna (4yagi antennas) is used in conjunction with the large reflector as an interferometer. Three radars are available at the Observatory: 430 MHz., 40 MHz., and 0.425-25 MHz. There is also a 0.425-25 MHz radar at Hoja Cana, Puerto Rico. Some accommodations for visiting scientists are available at the Observatory.

9. COMMENT AND PUBLICATION REFERENCES:

The Arecibo reflector is the world's largest radio astronomy- Aeronomy telescope and is open to all scientists with suitable programs.

Ref: 1. Observatory Brochure: Arecibo Ionospheric Observatory
Subject: Scope of the work and description of facilities.

Note: This facility was transferred to the National Science Foundation in November, 1969.

10. DATE OF REPORT: 30 September 1969

ARMAMENT LABORATORY
INSTALLATION

DOD (AIR FORCE)
AGENCY OR DEPT.

223

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Col. A. B. Martin, Commander A. TECHNICAL DIRECTOR: -

3. LOCATION: A. Valpariso (Nearest City) B. Okaloosa (County) C. Florida (State)

4. P. O. ADDRESS: Air Force Armament Laboratory

A. Eglin Air Force Base (City) B. Florida (State) C. 32542 (Zip Code) D. Area Code 904 882-3003 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 226
B. ALL OTHER PERSONNEL (Total): 220

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 5.385 M
B. EXTRAMURAL (Total): $ 28.214 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Air Force Armament Laboratory (AFATL) has responsibility for exploratory, advanced and engineering development programs for non-nuclear munitions and weapons, targets and scorers, and associated equipment; acts as the AFSC lead lab for the exploratory and advanced development programs in those technologies associated with armament effectiveness, to include air launched missiles, fire control, weapons delivery subsystems and related AGE; has engineering responsibility for the test and evaluation of armament subsystems; is, in response to ASD, responsible for the engineering development of non-nuclear munitions; prepares probe and munition ballistic data and conducts studies and analyses on lethality, vulnerability and weapons effects; acts as a focal point for armament technology; conducts in-house research to maintain a high level of technical competence; is the central point of contact with other DoD agencies on the technical aspects of non-nuclear munitions. Executes assigned projects for and works closely with the Army, Navy, NASA, ARPA and other government agencies.

12-02	Mathematical Sciences	- Operations Research
15-02	Military Sciences	- Chemical, Biological, and Radiological Warfare
16-04	Missile Technology	- Missiles
16-04.1	" "	- Air- and Space-Launched Missiles
19-01	Ordnance	- Ammunition, Explosives, and Pyrotechnics
19-02	"	- Bombs
19-04	"	- Explosions, Ballistics, and Armor
19-05	"	- Fire Control and Bombing Systems
19-06	"	- Guns

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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224 **8. MAJOR EQUIPMENT:**

Major equipment other than general laboratory equipment includes range facilities and test preparation facilities for conducting various types of munitions tests.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

ARNOLD ENGINEERING DEVELOPMENT CENTER
INSTALLATION

DOD (AIR FORCE)
AGENCY OR DEPT.

225

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Brig Gen Jessup D. Lowe
A. TECHNICAL DIRECTOR: Mr. Don R. Eastman

3. LOCATION: A. Tullahoma (Nearest City) B. Coffee (County) C. Tenn. (State)

4. P. O. ADDRESS: AFSC Arnold Air Force Station
A. Arnold Engineering Development Ctr. (City) Tenn. (State) C. 37389 (Zip Code) D. A.C. 615 455-2611 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 103
B. ALL OTHER PERSONNEL (Total): 146

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 9.690 million
B. EXTRAMURAL (Total): $ 50.676 * "

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Primary mission is to support the timely acquisition of superior aerospace systems by conducting environmental tests simulating actual flight conditions as well as is feasible. Secondary mission is to keep existing facilities modern, develop new test techniques and plan advanced facilities.

01-01 Aeronautics - Aerodynamics
14-02 Methods & Equip - Test facilities and test equip
14-04 " " " - Reliability
16-04 Missile Technology - Missile components
21-08 Propulsion & Fuels - Rocket motors and engines

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

226

8. MAJOR EQUIPMENT:

AEDC is comprised of about 32 major test facilities having a capital value of more than $400 million. Included are 14 wind tunnels with test sizes to 16 ft sq and speeds ranging from subsonic to mach no. 22 five turbine engine test cells which can provide true simulation to above mach 3 five rocket altitude test cells, the largest rated at one-half million lb thrust three hyperballistic ranges and four space simulation chambers, the largest being 42 ft in diam. and 82 ft high. These test facilities have supported the development and qualification of every major aeronautical, missile and space system initiated since 1954. Through adequate planning of an environmental test program in these facilities, development program managers can help to assure that system design deficiencies are found early, preventing cost and schedule overruns.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

* Virtually all of these funds represent cost of contractor work performed on site.

10. DATE OF REPORT: 30 September 1969

AVIONICS LABORATORY
INSTALLATION

DOD (AIR FORCE)
AGENCY OR DEPT.

227

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Col. J. E. Kulpa, Jr.Comdr
A. TECHNICAL DIRECTOR: Mr. R. J. Nordlund, Ch Sci

3. LOCATION: A. Dayton (Nearest City) B. Montgomery (County) C. Ohio (State)

4. P. O. ADDRESS: AF Avionics Laboratory
A. Wright-Patterson AFB (City) B. Ohio (State) C. 45433 (Zip Code) D. A.C. 513 257-1110 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 364
B. ALL OTHER PERSONNEL (Total): 168

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 6.069 M
B. EXTRAMURAL (Total): $ 85.411 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Plan, formulate, and execute exploratory and advanced development programs in communications, lasers, molecular electronics, electromagnetic warfare and vehicle environment, camouflage, antennas, navational guidance, weapon delivery, and aerospaceborne reconnaisance and surveillance.

Conduct in-house research. Acts as AFSC focal point for information in assigned technical areas. Execute projects for, and works closely with other govt agencies. Insure the rapid application of research and technology to advanced systems. Provide technical support to current and future systems, programs, and operational support projects. Perform conceptual planning, analyses, and studies.

17-02	Navigation, Comm, Detection & Countermeasures	- Communications
17-04	" " " " "	- Electromag & Acoustic Counter.
17-07	" " " " "	- Navigation & Guidance
17-09	" " " " "	- Radar Detection
20-05	Physics - Masers and Lasers	

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

228 8. MAJOR EQUIPMENT:

Research facility with 100-in. aperture optical collimator - dynamics analyzer for advanced reconnaisance system; celestial guidance research lab with 12-in. cassegrain telescope under 16-ft dia observatory dome; Laser research facility in electro-optical exp observatory; solid-state and integrated-circuits lab electromagnetic techniques and countermeasures lab.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

CAMBRIDGE RESEARCH LABORATORIES
INSTALLATION

DOD (AIR FORCE)
AGENCY OR DEPT.

229

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Col. Dale J. Flinders
A. TECHNICAL DIRECTOR: Dr. John N. Howard

3. LOCATION: A. Bedford (Nearest City) B. Middlesex (County) C. Mass. (State)

4. P. O. ADDRESS: AF Cambridge Research Laboratories
A. L.G. Hanscom Field (City) B. Mass. (State) C. 01730 (Zip Code) D. A.C. 617 274-6100 x 4280 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 676
B. ALL OTHER PERSONNEL (Total): 568

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 30.768 million
B. EXTRAMURAL (Total): $ 36.011 "

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts and supports Air Force relevant research and exploratory development in environmental, engineering, and physical sciences with major emphasis on geophysics and electronics. Also conducts and supports specifically assigned advanced development efforts.

Research not using major equipment includes energy conversion, reentry communications, laser physics, seismology, and information processing related studies on speech and computer language. All programs are supported by a 7094 direct couple computational facility.

04-01 Atmospheric Sciences - Atmospheric Physics
04-02 " " - Meteorology
08-11 Earth Sciences and Oceanography - Seismology
09-01 Electronics and Electrical Engineering - Components
09-02 " " " " - Computers
10-01 Energy Conversion (Non-Propulsive) - Conversion Techniques
17-02 Navigation, Communications, Detection & Countermeasures - Communications
17-10 " " " " " - Seismic Detection
20-05 Physics - Masers and Lasers

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

230 8. MAJOR EQUIPMENT:

Research includes solar physics and forecasting using 84 and 150 feet radio and vacuun tower optical telescopes meteorology using S, X, L bank radars, mobile micromet obs system and C130 laboratory optical, upper atmos, and near-earth space physics using rockets, satellites, balloons, and 2 KC135 and 1 C130 laboratories geodesy, gravity and remote sensing using C130 electronic materials and radiation effects using a van de graaff accelerator and a 12 mev linac and microwave physics including antenna design and millimeter wave propagation using 29 ft antenna.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

EASTERN TEST RANGE — INSTALLATION

DOD (AIR FORCE) — AGENCY OR DEPT.

231

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: M.Gen D. M. Jones, USAF Comdr A. TECHNICAL DIRECTOR:

3. LOCATION: A. Melbourne (Nearest City) B. Brevard (County) C. Florida (State)

4. P. O. ADDRESS: AF Eastern Test Range
   A. Patrick Air Force Base (City) B. Florida (State) C. 32925 (Zip Code) D. A.C. 305 494-1110 x 4001 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 345
   B. ALL OTHER PERSONNEL (Total): 4069

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 67.638 M
   B. EXTRAMURAL (Total): $ 169.472 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Develop, maintain, operate the AF Eastern Test Range. Responsible for obtaining and coordinating all government contractor services needed to provide effective support of DoD, NASA, and other agency programs consistent with established national policies and priorities.

14-02	Methods and Equipment - Labs, Test Facilities, and Test Equipment
14-04	" " " - Reliability
16-01	Missile Technology - Missile Launching and Ground Support
16-02	" " - Missile Trajectories
19-02	Ordnance - Bombs
19-06	" - Guns
22-01	Space Technology - Astronautics
22-04	" " - Spacecraft Launch Vehicles and Ground Support

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

232 8. MAJOR EQUIPMENT:

Facilities for launch of ballistic and space vehicles
Provide telemetry data acquisition and display
Comm sys capability to integ all RG instr
Comd/cont sys for trans of app commands to vehicles
Provide bioastronautic support for manned space missions
RG ships to support launch tests and reentry bodies
Aria for receiving and recording comm from space vehicles
Alots acft for high-altitude photography
Msl and space veh trajectory measurement, terminal impact location
Field photographic services for range users
Data processing, msl impact and orbital parameter determination

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

ELECTROMAGNETIC COMPATIBILITY ANALYSIS CENTER
INSTALLATION

DoD (Air Force)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: IIT Research Institute

2. DIRECTOR: M. M. Deterding
A. TECHNICAL DIRECTOR: M. M. Deterding

3. LOCATION: A. Annapolis (Nearest City) B. Anne Arundel (County) C. Maryland (State)

4. P. O. ADDRESS: Electromagnetic Compat. Analysis Center, North Severn Street
A. Annapolis (City) B. Maryland (State) C. 21402 (Zip Code) D. 301-268-7771 - X8805 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 141
B. ALL OTHER PERSONNEL (Total): 131

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 4.500 million
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Provides advice and assistance on electro-magnetic compatibility matters to the Secretary of Defense, the Joint Chiefs of Staff, the Military Departments and other DoD Components. As part of the DoD Electromagnetic Compatibility Program (EMC), ECAC provides analytical capability for investigating interference problems during design, development, production and operation of C-E equipment and systems.

17-02	Navigation, Comm. Detection & Countermeasures-Communications
17-02.1	" " " " " -Radio Communications

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES
Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

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8. MAJOR EQUIPMENT:

UNIVAC 1108 Computer (Leased)

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission, functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

For communication directly with the contractor, inquiries should be addressed as follows:

Electromagnetic Compatibility Analysis Center
IIT Research Institute
10 West 35th Street
Chicago, Illinois 60616

10. DATE OF REPORT:

EPIDEMIOLOGICAL LABORATORY
INSTALLATION

DOD (AIR FORCE)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Col. David Auld, USAF MC
A. TECHNICAL DIRECTOR:

3. LOCATION: A. San Antonio (Nearest City) B. Bexar (County) C. Texas (State)

4. P. O. ADDRESS: Air Force Epidemiological Laboratory
A. Lackland AFB (City) B. Texas (State) C. 78236 (Zip Code) D. 512-671-4240 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 20
B. ALL OTHER PERSONNEL (Total): 37

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 2.232 million
B. EXTRAMURAL (Total): $ .023 "

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Provide consultation, professional services and laboratory support in performance of epidemiological research. Provide instruction in epidemiology and laboratory medicine. Establish and maintain capability for research in infectious disease organisms and epidemiology. Diagnosis, prevention and treatment diseases.

Furnishes support to all AF medical facilities. Provides forensic toxicological support except for aircraft deaths. Provides support and consultation service in bacteriology, parisitology, serology, virology, and chemistry. Performs investigations and research in epidemiology and related life sciences.

06-05	Biol & Med Sciences	- Clinical Medicine
06-05	" " " "	- Epidemiology
06-06	" " " "	- Environmental Biol.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

236 **8. MAJOR EQUIPMENT:**

Operates and maintains electron microscope, cont particle electrophor and gas chromatography.

New laboratory building being built at Brooks for USAFEL 1970.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

Acts as referral center for all AF medical facility laboratory problems and procedures beyond their capabilities.

10. DATE OF REPORT: 30 September 1969

FLIGHT DYNAMICS LABORATORY
INSTALLATION

DOD (AIR FORCE)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Col Joseph R. Myers, Comd.Officer A. TECHNICAL DIRECTOR: William E. Lamar

3. LOCATION: A. Dayton (Nearest City) B. Montgomery (County) C. Ohio (State)

4. P. O. ADDRESS: AF Flight Dynamics Laboratory

A. Wright-Patterson Air Force Base (City) B. Ohio (State) C. 45433 (Zip Code) D. A.C. 513 257-1110 x 53900 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 430

B. ALL OTHER PERSONNEL (Total): 260

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 10.512 M

B. EXTRAMURAL (Total): $ 32.807 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Plan and execute USAF exploratory and advanced dev. programs for aerospace flt. vehicle structures, flt. mechanics, flt control, vehicle dynamics, and vehicle equipment, provide tech. or mgt assist in support of studies analyses, dev. plans, test, evaluation, modification of aerospace sys and equip.

Functions: conduct in-house research to maintain high level tech confidence, act as focal pt. for inf in assigned tech areas, execute projects for and work with DoD and other gov. agencies, support AFSC programs and insure rapid application of res and tech. to advd systems, conduct foreign aerospace technology activities within scope of assigned mission, provide tech. support to current and future sys. in areas of tech cognizance.

01-01 Aeronautics - Aerodynamics
01-03 " - Aircraft
13-07 Mechanical, Industrial, Civil & Marine Engrg. - Hydraulic & Pneumatic Equip.
22-02 Space Technology - Spacecraft

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Facility capability: 26 facilities are operated by the lab., 15 are prime, 11 are subelements; some prime capabilities include structural test of full scal veh. and components, invest. acoustic fatigue effects on full size veh and components, fifty MW arc heated gasdynamic test for large scale heating investigations, structural testing of landing gear systems including tires brakes and wheels.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

FLIGHT TEST CENTER
INSTALLATION

DOD (AIR FORCE)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Brig. Gen. Alton D. Slay

A. TECHNICAL DIRECTOR: Mr. Charles W. Oliver

3. LOCATION: A. Lancaster (Nearest City) B. Kern (County) C. California (State)

4. P. O ADDRESS: Flight Test Center

A. Edwards Air Force Base (City) B. Calif. (State) C. 93523 (Zip Code) D. Area Code 805 277-2100 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 809

B. ALL OTHER PERSONNEL (Total): 4049

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 54.082 million

B. EXTRAMURAL (Total): $ 5.628 "

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Plan, conduct quantitative engineering development tests and evaluation of manned aircraft and lifting bodies. Evaluation includes aerodynamic performance, stability and control system and subsystems, ground support equipment, maintainability, reliability and aircraft arrestors. Conduct research to support mission. Operate aeronautical research pilot school. Provide support to NASA, other DoD tenants and government contractors.

01-01	Aeronautics	- Aerodynamics
01-02	"	- Aeronautics
01-03	"	- Aircraft
01-04	"	- Aircraft Flight Instrumentation
05-09	Behavioral and Social Sciences	- Personnel Selection, Training & Evaluation
14-02	Methods and Equipment	- Laboratories, Test Facilities, and Test Equipment
14-04	" " "	- Reliability

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

240

8. MAJOR EQUIPMENT:

Technical facilities and equipments are available to provide a complete range of services for conducting category flight testing of aeronautical systems conduct flight evaluation and recovery or retrieval of research vehicles, train aerospace research pilots. Engineering labs, realtime instrumented ranges, data collection, reduction and analysis labs, photo/TV, acft/engine/maint, test equip, and electronics shops along with a complex of dry lakes for recovery and emergency lancing provides various support all test programs. Other major facilities are prevision impact, gunnery/bomb, photo resolution and IR, radar fidelity, tactical, and optical ranges contractor assigned hangers, shops, labs, and office space munitions storage and checkout joint parachute test facility at El Centro NAF engineering simulation lab and barrier/arresting gear complex.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

HUMAN RESOURCES LABORATORY
INSTALLATION

DoD (AIR FORCE)
AGENCY OR DEPT.

241

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: John G. Dailey, Col USAF
   A. TECHNICAL DIRECTOR:

3. LOCATION: A. San Antonio (Nearest City) B. Bexar (County) C. Texas (State)

4. P. O. ADDRESS: Air Force Human Resources Laboratory
   A. Brooks AFB (City) B. Texas (State) C. 78235 (Zip Code) D. A.C. 512 536-3605 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 118
   B. ALL OTHER PERSONNEL (Total): 185

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 2.344 M
   B. EXTRAMURAL (Total): $ 1.841 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Principle of interface with scientific, industrial, and other govt agencies for management of basic, exploratory, and advanced development R&D program in personnel selection, management and training, evaluation of new technical developments for application to AF problems.

Functional areas of occupational analysis, personnel procurement,
Personnel classification and retention and separation
Personnel system simulation models, manpower rqmts of AF weapon systems
Training techniques, design of simulators and other training devices
Capabilities study training problems associated with vehicular control, operator tasks, checkout and maintenance of electronic equipment.

05-08 Behavioral & Social Sciences - Man-Machine Relations
05-09 " " " " - Personnel Selection, Training & Evaluation
05-10 " " " " - Psychology (Individual and Group Behavior)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

242 8. MAJOR EQUIPMENT:

Technical and professional library, personnel testing rooms audio visual equipment, research simulator (cockpit) infinity optics display, Raytheon PB 440 digital computer, IBM 7040 electronic data processing system w/6 tapes, disc file card read/punch, printer and inquiry station, visual display device (crt) electronics associates TR48 analog computer.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

LINCOLN LABORATORY
INSTALLATION

DOD (Air Force)
AGENCY OR DEPT.

243

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: Massachusetts Institute of Technology

2. DIRECTOR: Dr. M. V. Clauser
A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Bedford (Nearest City) B. Middlesex (County) C. Massachusetts (State)

4. P. O. ADDRESS: Cambridge

A. Cambridge (City) B. Mass. (State) C. 02319 (Zip Code) D. 617- 862-5500 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1968):
A. R&D PROFESSIONALS (Total): 612
B. ALL OTHER PERSONNEL (Total): 1,141

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 40,043,000
B. EXTRAMURAL (Total): $ 27,530,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Provides the USAF with specialized technical and scientific capabilities which are not normally available within the Air Force. These specialized R&D activities are essential to increase the technical capabilities of the Service to satisfy Long Range R&D Objectives (RDO), meet Required Operational Capabilities (ROC) and to exploit applications of knowledge obtained from the research program. The technical program under this project is divided into two general crews, General Research and Space Communications. General Research is further divided into the following five fields -- Solid State Research, Data Systems, Integrated Circuit Research, Radar and Radio Physics.

09-01	Electronics & Electrical Engrg - Components
09-02	" " " " - Computers
16-02	Missile Technology - Missile Trajectories
16-04	" " - Missiles
17.02.1	Navigation, Comm, Detection & Countermeasures-Radio Communications
20-12	Physics - Solid State Physics

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

CDC 3200	Computer	Owned	UNIVAC 490	Computer	Owned
CDC 3300	Computer	Leased	" 1218	"	"
DEC PDP-1	Computer	Owned	" 1219	"	"
DEC PDP-7	Computer	Owned	VARIAM 620	"	"
DEC PDP-8/2	Computer	Owned	X DS 9300	"	"
Honeywell PDP/424	Computer	Owned	X DS Sigma 5	"	"
" PDP/516	Computer	Owned			
Hewlitt-Packard 2116B	"	"			
IBM 360/20	"	Leased			
IBM 360/67	"	"			
IBM 7094 II	"	Owned			
IBM 360/30	"	Leased			
LGP-30	"	"			
LINC Hybrid	"	Owned			
Raytheon 706	"	"			
SEL-810A	"	"			
TX-2	"	"			

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission, functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT:

MATERIALS LABORATORY
INSTALLATION

DOD (AIR FORCE)
AGENCY OR DEPT.

245

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. A. M. Lovelace
A. TECHNICAL DIRECTOR: Dr. S. W. Tsai, Ch Sci

3. LOCATION: A. Dayton (Nearest City) B. Montgomery (County) C. Ohio (State)

4. P. O. ADDRESS: Air Force Materials Laboratory
A. Wright-Patterson AFB (City) B. Ohio (State) C. 45433 (Zip Code) D. Area Code 513 257-1110 x 54726 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 312
B. ALL OTHER PERSONNEL (Total): 86

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1.722 M
B. EXTRAMURAL (Total): $ 39.405 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The AF Materials Lab serves as the nucleus of the USAF materials exploratory and advanced development program. Composed of 6 divisions, which collectively cover all types of materials and processes, this lab conducts a broad contractual program in addition to extensive internal basic and applied research. Its goal is to accelerate the development of improved materials for the construction of all types of weapons systems, aerospace vehicles, and associated components to assure availability in advance of AF requirements. The Materials Lab provides research and development in the areas of analytical chemistry, advanced metallurgy, ceramics and graphite, mechanics, coatings, fluids and lubricants, polymers, fibrous materials, plastics, composites, elastomers and manufacturing methods.

07-04	Chemistry	-	Physical Chemistry
11-01	Materials	-	Adhesives and Seals
11-02	"	-	Ceramics, Refractories, and Glasses
11-03	"	-	Coatings, Colorants, and Finishes
11-04	"	-	Composite Materials
11-05	"	-	Fibers and Textiles
11-06	"	-	Metallurgy and Metallography
11-08	"	-	Oils, Lubricants, and Hydraulic Fluids
11-09	"	-	Plastics
20-02	Physics	-	Crystallography
20-11	"	-	Solid Mechanics
20-12	"	-	Solid State Physics

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

246 8. MAJOR EQUIPMENT:

Impulsive loading and impact materials research facility; evaluation and analysis of materials properties and applications; metallurgical mat research facility; ceramics and graphite materials research facility; mechanics of materials research facility; optical and protective coating materials research capabilities; fluid and lubricant materials research facility; polymeric materials synthesis and research facility; fibrous materials research facility; plastic and composite materials research and development; elastomeric materials research facility; electromag and electro-optical materials research facility.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

MISSILE DEVELOPMENT CENTER
INSTALLATION

DOD (AIR FORCE)
AGENCY OR DEPT.

247

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Col. G. T. Buck, Comdr.
A. TECHNICAL DIRECTOR: Mr. E. A. Steinhoff, Ch Sci

3. LOCATION: A. Alamogordo (Nearest City) B. Otero (County) C. New Mexico (State)

4. P. O. ADDRESS: Missile Development Center
A. Holloman Air Force Base (City) B. New Mexico (State) C. 88330 (Zip Code) D. 505-473-6511 X4541 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 431
B. ALL OTHER PERSONNEL (Total): 3218

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 53.618 Million
B. EXTRAMURAL (Total): $ 12.470 Million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Test and evaluate airborne missiles, drones, acft recon systems, missiles reentry vehicles and aids.

Operate the central inertial guidance test facility, the AFSC high speed track facilities, and the radar target scatter site.

The Missile Development Center provides capability for conducting Category II tests of Air-to-Air and Air-to-Surface missiles and target drones; operating guidance test facilities; supporting and conducting tests of ballistic missile nose cones and re-entry systems; managing and operating the AFSC high speed track test facilities; and providing technical support and participation in drop tests of ballistic shapes, atmospheric and space probes and escape subsystems of manned space vehicles.

14-02	Methods & Equip	- Test facilities and test equipment
14-04	" " "	- Reliability
16-01	Missile Technology	- Missile launching and ground support
16-02	" "	- Missile trajectories
22-03	Space Technology	- Trajectories and reentry

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

248 8. MAJOR EQUIPMENT:

High speed test track facility including rocket propulsion test stand, and rain and dust erosion systems.

Guidance test facility including 100 and 260 inch centrifuges, 3 axis flight simulator, stellar simulator, and environmental test chambers.

Drone test support facility with BQM-34 and launch facilities.

Aircraft systems test facility with aircraft and support equipment including electro-optical targets.

Missile launch facility with launchers and spin balance machine.

Computation facility including CDC-3600-3800 computer systems, hybrid analog computer, and pre-computer data processing equipment.

Photo-optical facility including ground and aerial cameras including photo coverage of high speed test track and photo proc lab. Radar target scaller facility includes electronic system to simulate radar reflectivity.

9. COMMENT AND PUBLICATION REFERENCES:

The adjacent 40 x 140 mi overland White Sands Missile Range operated by the U. S. Army for DOD, with off-range corridors extending as far as Green River, Utah, (400 mi.) backs up the AFMDC test capabilities such as Aircraft and Missiles Tests and Reentry Systems Tests.

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

MITRE CORPORATION
INSTALLATION

DOD (Air Force)
AGENCY OR DEPT.

249

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: MITRE Corporation

2. DIRECTOR: R. R. Everett, President
A. TECHNICAL DIRECTOR: Same

3. LOCATION. A. Bedford (Nearest City) B. Middlesex (County) C. Massachusetts (State)

4. P. O. ADDRESS: P. O. Box 208
A. Bedford (City) B. Mass. (State) C. 01730 (Zip Code) D. (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 1.078
B. ALL OTHER PERSONNEL (Total): 1.098

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 34,131,000
B. EXTRAMURAL (Total): $ ----

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Provides scientific and engineering support in (a) advanced planning for the acquisition of communications and information systems; (b) research and experimentation; (c) planning and designing of interfaces between national, federal and international allied military systems, and (d) systems engineering and technical direction. The advanced systems planning effort deals with the conception and definition phases in the life cycle of systems. The conceptual phase involves studies in such fields as technical feasibility, evaluation of planning activities, cost-effectiveness, preliminary system design, and preparation of concept formulation and technical plans. The definition phase involves the preparation of plann. system specifications and bid packages, the review of definition studies, comparis of possible system configurations on a technical and cost-effective basis, and preparation of the technical portion of systems program documentation. The research and experimentation program includes investigation in such areas as radar optics, communications, computer applications, physics, environmental factors, circuits, devices and displays.

09-01	Electronics & Electrical Engrg - Components
09-02	" " " " - Computers
17-02	Navigation, Comm, Detection & Countermeasures-Communications
17-09	" " " " " - Radar Detection

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

DEC PDP - 8	Computer	MITRE Owned
Hewlitt-Packard 2115A	"	Government Owned
IBM 1800	"	Leased
IBM 360/50	"	"
IBM 7030	"	Government Owned
INTER DATA Mod 3	"	MITRE Owned
Phoenix	"	" "
Honeywell 516	"	Leased

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission, functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT:

OFFICE OF RESEARCH ANALYSES
INSTALLATION

DOD (AIR FORCE)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
   (1) ☒ GOVERNMENT-OPERATED
   (2) ☐ FFRDC
   (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
   (1) ☐ GOVERNMENT-OPERATED
   (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Col. Ernest J. Davis, Jr. A. TECHNICAL DIRECTOR: Dr. Gerhard R. Eber

3. LOCATION A. Alamogordo (Nearest City) B. Otero (County) C. New Mexico (State)

4. P. O. ADDRESS: Office of Research Analyses
   A. Holloman AFB (City) B. New Mexico (State) C. 88330 (Zip Code) D. A.C. 505 473-6511 x 3642 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 27
   B. ALL OTHER PERSONNEL (Total): 17

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 0.814 Million
   B. EXTRAMURAL (Total): $ .030 Million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

To develop decision information to assist Hq OAR in insuring that the OAR basic research program is relevant to future Air Force missions and that Air Force system planning agencies are aware of the operational implications of basic research results.

Conducts system analyses to determine the technical validity, operational feasibility and cost effectiveness of proposed future aerospace weapon system concepts. Conducts research analyses to determine cost effective applications for accomplished or on-going research, and to develop methodologies by which planners can identify promising opportunities for relevant research programs. Conducts mission identification methodology studies to develop improved means of identifying future aerospace missions and system concepts by analysis of national objectives and the projected socio-eco-political environment and conducts studies to validate these methodologies. Provides technical consultant services to other Air Force organizations as requested.

12-02 Mathematical Sciences - Operations research

14-01 Methods and Equipment - Cost effectiveness

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

252 8. MAJOR EQUIPMENT:

Operates a technical library and document service center to support ORA, AFMOC, and other tenants.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

RAND CORPORATION
INSTALLATION

DOD (Air Force)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: The RAND Corporation

2. DIRECTOR: H. S. Rowen, President A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Santa Monica (Nearest City) B. Los Angeles (County) C. California (State)

4. P. O. ADDRESS: 1700 Main Street

A. Santa Monica (City) B. Calif. (State) C. 90406 (Zip Code) D. 213- 393-0411 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 532
B. ALL OTHER PERSONNEL (Total): 681

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 21,171,000
B. EXTRAMURAL (Total): $ -----

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Provides the Air Force with scientific assistance in improving the Research and Development decisions that determine the character and set the limits of future Air-Combat capabilities. The scope of effort encompasses future Air Force weapons and equipment and the strategies for their use in both offense and defense.

15-03 Military Sciences - Defense

15-07 " " - Operations, Strategy, and Tactics

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

IBM 360/65 Computer (Leased)
IBM 360/50 Computer (Leased)
IBM 360/25 Computer (Leased)
PDP-6 Computer (Owned)

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission, functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

ROCKET PROPULSION LABORATORY
INSTALLATION

DOD (AIR FORCE)
AGENCY OR DEPT.

255

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Col. Howard M. Estes, Jr. CO A. TECHNICAL DIRECTOR: D. M. Ross, Dep Dir

3. LOCATION: A. Lancaster (Nearest City) B. Kern (County) C. Calif. (State)

4. P. O. ADDRESS: Air Force Rocket Propulsion Laboratory
A. Edwards Air Force Base (City) B. Calif. (State) C. 93523 (Zip Code) D. A.C. 805 273-2520 or 2519 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 239
B. ALL OTHER PERSONNEL (Total): 485

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 13.361 M
B. EXTRAMURAL (Total): $ 26.495 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Plan, formulate, present, and execute the AFSC explor and adv dev pgms in rkt propulsion sys, components, propellants, and assocd gnd equip. Conduct in-house rsch. Act as AFSC focal point for information in the assigned technical areas.

14-02	Methods and Equipment	- Laboratories, Test Facilities, and Test Equip.
21-01	Propulsion and Fuels	- Air-Breathing Engines
21-04	" " "	- Fuels
21-08	" " "	- Rocket Motors and Engines
21-08.1	" " "	- Liquid Rocket Motors
21-08.2	" " "	- Solid Rocket Motors
21-09	" " "	- Rocket Propellants
21-09.1	" " "	- Liquid Rocket Propellants
21-09.2	" " "	- Solid Rocket Propellants

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

256 8. MAJOR EQUIPMENT:

A component test lab and centrifuge for testing small propulsion sys and components under simulated space environments. Facilities for formulatg and testing in rkt motors small quantities of new solid and liquid propellants. A chem laboratory for snythesis, analysis, and formulation of new propellants. A test complex for solid motor test and eval. ambient and altitude testing of toxic rkts up to 10,000,000 lb thrust. In-house analytical capability for w/s propulsion sys, optimization, trade-off and mission studies. A computer facility for design, analysis, and test-data reduct. Fabrication shops for exper test hdwre and test sys.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

ROME AIR DEVELOPMENT CENTER — INSTALLATION

DOD (AIR FORCE) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Col. Robert C. Mathis, Cdr.   A. TECHNICAL DIRECTOR: Dr. John S. Burgess, Ch Sci

3. LOCATION: A. Rome (Nearest City)   B. Oneida (County)   C. New York (State)

4. P. O. ADDRESS: Air Force Rome Air Development Center

   A. Griffiss AFB (City)   B. New York (State)   C. 13440 (Zip Code)   D. Area Code 315 330-7701 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   - A. R&D PROFESSIONALS (Total): 690
   - B. ALL OTHER PERSONNEL (Total): 835

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   - A. INTRAMURAL (Total): $ 24.047 M
   - B. EXTRAMURAL (Total): $ 83.795 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

RADC plans, presents, and executes the AFSC exploratory and advanced technology programs in the areas of high power microwave components, signal detection and processing, computation and display, reliability and maintainability, command and control, instrumentation and test, and associated areas. RADC also executes assigned projects for and works closely with the Army, Navy, NASA, ARPA, and other government agencies. Primary program areas include data acquisition, processing, and presentation; microelectronics; human engineering, intelligence and electronic warfare, comprising research and application of techniques and equipment used in the electromagnetic wave spectrum and communication jamming as well as countermeasures; and communications, with a major interest in the field of data transmission as well as communications techniques in propagation, detection antennas, and information theory.

09-01	Electronics and Electrical Engineering	- Components
09-02	" " " "	- Computers
09-05	" " " "	- Subsystems
17-02	Navigation, Comm., Detection and Countermeasures	- Communications
17-03	" " " " "	- Direction Finding
17-04	" " " " "	- Electromag.& Acoustic Cntr / Meas.
17-09	" " " " "	- Radar Detection
20-14	Physics	- Wave propagation

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

258 8. MAJOR EQUIPMENT:

Provides a well balanced combination of professional skills and experimental facilities to marry theoretical studies to potential application. By combination of airborne laboratory measurement in instrumented flight test aircraft and flexible on-base and off-base experimental sites, a high degree of sophistication is achieved for conducting ground electromagnetic studies and experiments, capabilities are available for conducting high and low power experiments over electromagnetic spectrum from extremely low frequencies to light. Scientific studies are pemitted using one of the nations largest on-line time sharing computers. Resources are primarily used in exploratory and advanced developments and extending to technical support thirty-five other Air Force and DoD organizations.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

SCHOOL OF AVIATION MEDICINE
INSTALLATION

DOD (AIR FORCE)
AGENCY OR DEPT.

259

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Joseph M. Quashnock, Col, USAF A. TECHNICAL DIRECTOR:

3. LOCATION: A. San Antonio (Nearest City) B. Bexar (County) C. Texas (State)

4. P. O. ADDRESS: School of Aviation Medicine

A. Brooks Air Force Base (City) B. Texas (State) C. 78235 (Zip Code) D. 512-536-3207 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 304
B. ALL OTHER PERSONNEL (Total): 720

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 14.841 million
B. EXTRAMURAL (Total): $ 3.270 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research in aviation and aerospace medicine, environmental stress, developmental engineering, radiobiology, laser hazards, biometrics, bioscience, and biomedical engineering. Aerospace medical consultation services, aeromedical evaluation, Clinical science, oculo-thermal, research optical, audiology, vestibular, psychobiology, radioisotope, aerospace medical standards, and laser hazards. Education and training.

06-02	Biol & Med Sciences	- Bioengineering
06-04	" " " "	- Bionics
06-05	" " " "	- Clinical Medicine
06-12	" " " "	- Med Equip
06-14	" " " "	- Personnel Selection
06-18	" " " "	- Radiobiology
05-10	Behav & Soc Sci	- Physiological Psychology
06-11	Biol & Med Sciences	- Life Support
06-16	" " " "	- Physiology

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

260 **8. MAJOR EQUIPMENT:**

Aerospace medical research laboratory. Telemetry receiving station, human centrifuge, various test cells and chambers, Cockcraft-Walton accelerator neutron generator, Philco 2000 digital computer, rotational flight simulator, kilo-curie co-60 radiation source.

Aerospace medical science laboratory - aerospace medical consultation services, aeromedical evaluation.

Zeiss photo-coagulator, vectorcardiograph machine, ballistocardiograph machine, phonocardiograph machine, and mass spectrometer.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

FRANK J. SEILER RESEARCH LABORATORY
INSTALLATION

DOD (AIR FORCE)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Col. Milton D. Sprinkel
   A. TECHNICAL DIRECTOR:

3. LOCATION: A. Colorado Springs (Nearest City) B. El Paso (County) C. Colorado (State)

4. P. O. ADDRESS: Frank J. Seiler Research Laboratory
   A. USAF Academy (City) B. Colorado (State) C. 80840 (Zip Code) D. 303-472-3120 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 24
   B. ALL OTHER PERSONNEL (Total): 14

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ .566 million
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conduct research in aerospace mechanics, applied mathematics and chemistry. Encourage and support academy faculty and cadet research by direct participation, programming and use of computers and summer laboratory programs.

Research in:
    Organometallic and electrochemistry,
    Fluid dynamics

07-02	Inorganic Chemistry
07-03	Organic Chemistry
07-04	Physical Chemistry
12-01	Mathematics and Statistics
12-02	Operations Research

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Math optimization control and guidance systems using Burroughs B5500 computer.

6 position lab and instrument room containing analog nuclear magnetic resonator, spectrometer, x-ray equipment, infrared spectrophotometer, mass spectrometer, automatic gas chromatograph and other equipment.

17 inch low density shock tube and instrumentation, 2 inch high density shock tube and wind tunnels.

Burroughs B5500 computer with 20 remote terminals and cal comp plotter.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

SPECIAL WEAPONS CENTER — INSTALLATION

DOD (AIR FORCE) — AGENCY OR DEPT.

263

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Col. James E. Paschall, USAF

A. TECHNICAL DIRECTOR: Mr. D. E. Chadwick

3. LOCATION: A. Albuquerque (Nearest City) B. Bernalillo (County) C. New Mexico (State)

4. P. O. ADDRESS: Air Force Special Weapons Center

A. Kirtland Air Force Base (City) B. New Mexico (State) C. 87117 (Zip Code) D. A.C. 505 247-1711 x 2444 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 305

B. ALL OTHER PERSONNEL (Total): 2372

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 38.071 million

B. EXTRAMURAL (Total): $ 4.032 "

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conduct and support test projects pertaining to nuclear weapon systems and supporting equipment. Operate and maintain nuclear effects simulation facilities and perform analyses. Develop operational test concepts, conduct air operations and support AEC/DOD nuclear test program.

06-18	Biological and Medical Sciences - Radiobiology
14-02	Methods and Equipment - Laboratories, Test Facilities & Test Equipment
14-04	" " " - Reliability
15-06	Military Sciences - Nuclear Warfare
18-01	Nuclear Science and Technology - Fusion Devices (Thermonuclear)
18-03	" " " " - Nuclear Explosions
18-08	" " " " - Radioactivity

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Major equip Instmn. vans,test cen. control van,electrodynamic vibratto analyzer shock tester,monterey shock mach,centrifuge,dymec. data acquisition sys,large loading frame, hydraulic load application equip, platform weighing sys,torsional pendulum, industrial x-ray sys,environmental chambers, solar energy chamber, analog controller, analog data sys,carrier amplifier sys,bridge bal units,time code generator, shock actuators,super flach x-ray mach, telemetry acquisition sys,time code generator,predetection converter, telemetry receivers.

Major facilities surv/vuln analys fclty. Electromagnetics fclty. Equip lab. Materials test lab. environmental lab. micro electronics fclty. Seismic impulse fclty. Nuclear shock effects testing fclty. Transient radiation effects fclty (tref). Flt test fclty. Parachute test fclty.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

WEAPONS LABORATORY
INSTALLATION

DOD (AIR FORCE)
AGENCY OR DEPT

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Col. David R. Jones
   A. TECHNICAL DIRECTOR:

3. LOCATION: A. Albuquerque (Nearest City) B. Bernalillo (County) C. New Mexico (State)

4. P.O. ADDRESS: Air Force Weapons Laboratory
   A. Kirtland Air Force Base (City) B. N. Mexico (State) C. 87117 (Zip Code) D. Area Code 505 247-1711 x 2077 or 8 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 522
   B. ALL OTHER PERSONNEL (Total): 341

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 12.482 M
   B. EXTRAMURAL (Total): $ 38.276 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Weapons Laboratory is a research and exploratory development laboratory. There are five divisions within the Laboratory which collectively have as their prime objective the reduction of vulnerability of various systems to nuclear effects. The Weapons Laboratory provides capability and facilities for executing the AFSC exploratory and advanced development programs associated with kill mechanisms, effects, hazards, and delivery techniques and acts as the AFSC focal point for information in the assigned technical areas. The major work is accomplished in the areas of vulnerability analysis, research on nuclear weapons effects, and exploratory development on nuclear weapons components and associated equip. The laboratory provides direct support to ESD, BSD, SSD, and other RTD laboratories in the technical areas of responsibility. A major portion of the laboratory workload is performed in coordination with DASA, ARPA, and AEC projects.

06-18	Biological and Medical Sciences - Radiobiology
06-21	" " " " - Weapon Effects
07-05	Chemistry - Radio and Radiation Chemistry
15-06	Military Sciences - Nuclear Warfare
18-01	Nuclear Science and Technology - Fusion Devices (Thermonuclear)
18-03	" " " " - Nuclear Explosions
18-04	" " " " - Nuclear Instrumentation
18-06	" " " " - Radiation Shielding and Protection
18-08	" " " " - Radioactivity

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

266 8. MAJOR EQUIPMENT:

Nuclear weapons effects research, simulation, safety, test participation and analysis of weapons systems survivability/vulnerability are conducted in nuclear engineering test laboratory and science laboratory, physics buildings simulation tests on missiles use an electromagnetic pulse simulator, gas gun, and pulse power. Civil engineering research, exploratory and advanced development uses science laboratory, soils engineering's shock tubes. Laser research, application, and development in the laser/optics laboratory, uses large and high power devices. Radiobiology and space radiation research evaluates effects on man. A radiation laboratory using large mammals supports studies of neutron, gamma, and x-ray effects. A technical library and computation facility with a dual CDC-6600 supports research and tests.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

WESTERN TEST RANGE — INSTALLATION

DOD (AIR FORCE) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: CO M/G Clifford J. Kronauer
   A. TECHNICAL DIRECTOR: Mr. S. R. Radom

3. LOCATION: A. Lompoc (Nearest City) B. Santa Barbara (County) C. California (State)

4. P. O. ADDRESS: AF Western Test Range
   A. Vandenberg Air Force Base (City) B. Calif. (State) C. 93437 (Zip Code) D. Area Code 805 866-1611 x 6071 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 277
   B. ALL OTHER PERSONNEL (Total): 412

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 26.253 M
   B. EXTRAMURAL (Total): $ 60.833 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The range provides technical support required for safe launch and flight in addition to impact areas for both ballistic and orbital test programs. The range also provides tracking, telemetry, data processing, and communications in the launch, midcourse and impact areas. The range has stations located at Vandenberg, Pillar Point, Hawaii, and Eniwetok. The stations are equipped with metric tracking sensors, telemetry equipment, data processing facilities, and communication facilities, varying in degree of completeness according to location.

09-02	Electronics and Electrical Engineering - Computers
09-06	" " " " - Telemetry
14-02	Methods and Equipment - Labs, Test Facilities, and Test Equipment
14-04	" " " - Reliability
16-01	Missile Technology - Missile Launching and Ground Support
16-02	" " - Missile Trajectories

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Manages a total of 9 range instrumentation ships and 4 range inst A/C
Manages display systems timing and microwave and TV launch systems
Maintain and operate 2 command destruct stations and 2 freq monitor stat
Provide reqd systems for performing electronic and optical tracking
Provide system for performing telemetry measurements
Performs range data handling and processing
Provides re-entry vehicular recovery systems
Provides support and communication systems
Controls range equip located at Pillar Pt, Anderson Peak Hawaii, Eniwetok

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

ABERDEEN RESEARCH AND DEVELOPMENT CENTER — INSTALLATION

DOD (ARMY) — AGENCY OR DEPT.

269

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: C. W. Lampson

A. TECHNICAL DIRECTOR: C. W. Lampson, Ch Sci

3. LOCATION: A. Aberdeen (Nearest City) B. Harford (County) C. Maryland (State)

4. P. O. ADDRESS: Aberdeen Research and Development Center

A. Aberdeen Proving Ground (City) B. Maryland (State) C. 21005 (Zip Code) D. 301-278-5201 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 93

B. ALL OTHER PERSONNEL (Total): 248

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 1.386 million

B. EXTRAMURAL (Total): $ .646 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Use of statistics and operations research methods in management problems.

Establish confidence bounds on the reliability of series and parallel materiel systems, and of a component which has time-to-fail.

Analaysis of target coverage and target damage models for a salvo of N rounds.

Determine optimum procedures for detecting outlying observations and samples.

12-01 Mathematical Sciences - Math & Statistics
12-02 " " - Operations Research

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

No major equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

The Aberdeen Research and Development Center is an element of the Army Materiel Command.

10. DATE OF REPORT: 30 September 1969

Aeromedical Research Unit
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

271

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Col. Robert W. Bailey
A. TECHNICAL DIRECTOR: Dr. E. J. Baldes, Ph.D.

3. LOCATION: A. Ozark (Nearest City) B. Dale (County) C. Alabama (State)

4. P. O. ADDRESS: Aeromedical Research Unit
A. Ft. Rucker (City) B. Ala. (State) C. 36362 (Zip Code) D. Area Code 205 255-2813 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 24
B. ALL OTHER PERSONNEL (Total): 28

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1.100 Million
B. EXTRAMURAL (Total): $ .000 Million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Mission is to conduct timely studies on current and anticipated research problems of a fundamental or immediate nature relevant to Army aviation and airborne physical performance standards and the medical aspects of retention and selection of aviators and parachutists.

Major functions--to study the physiological and psychological aspects of aviation and airborne personnel in the training and operational environment.

05-09 Behav. & Social Sciences - Personnel selection and training
06-14 Biol. & Med. Sciences - Personnel Selection
06-21 " " " " - Weapons Effects

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Major equipment includes a soundproof hearing room, anechoic chamber, colorimeter, ECG and EEG machines, a biochemistry laboratory and an electronics machine and fabrication shop.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

AERONAUTICAL RESEARCH LABORATORIES
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

273

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Paul F. Yaggy
A. TECHNICAL DIRECTOR: Maj. Berry, Deputy

3. LOCATION: A. San Francisco (Nearest City) B. Santa Clara (County) C. California (State)

4. P. O. ADDRESS: Aeronautical Research Laboratories, Ames Research Center
A. Moffett Field (City) B. Calif. (State) C. 94035 (Zip Code) D. 415-961-1985 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 29
B. ALL OTHER PERSONNEL (Total): 27

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 2.5 million
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts basic and applied research in field of low-speed aeronautics.

Translate future AUS aeronautical requirements into research plans.

Plan and accomplish independent in-house research.

Plan, coordinate, program, perform and/or monitor research project conducted jointly with NASA and other agencies.

Keep abreast of aero research state-of-the-art world-wide and inform higher and lateral Hq and other agencies and institutions of pertinent developments providing the nucleus of aero capability within AUS.

Act as advisor or consultant to AUS or other agencies on matters concerning aero research. Monitor, technically, contractor support research projects, and coordinate all AUS aero research activities with NASA.

Conduct specific research for other agencies on non-interference basis with programmed research.

01-01 Aeronautics - Aerodynamics
01-03 Aeronautics - Aircraft

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES
Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Operate and maintain necessary experimental facilities allocated by NASA-Ames Research Center for use of U.S. Ames Aero Research Laboratory.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: September 30, 1969

ARCTIC TEST CENTER
INSTALLATION

DoD (ARMY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Col. Edwin M. Rhoads
   A. TECHNICAL DIRECTOR:

3. LOCATION: A. Fort Greely (Nearest City) B. (County) C. Alaska (State)

4. P. O. ADDRESS: Arctic Test Center
   A. Ft. Greely, (City) B. Alaska (State) C. APO Seattle 98733 (Zip Code) D. Autovon Info - 317-872-1113 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 63
   B. ALL OTHER PERSONNEL (Total): 375

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 5.011 Million
   B. EXTRAMURAL (Total): $ .000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Plan, conduct, record and report results of tests and evaluations conducted, including environmental phases of all tests,

Participate in and monitor troop tests as directed,

Advise proponent agencies and developers during their development of materiel, based on data and information derived directly from test experience.

Evaluate and recommend as to suitability of test items for prescribed use.

Perform research related to field instrumentation and testing techniques methodology.

Support field research studies tests and operations of other AMC elements and DA or DoD agencies.

14-02 - Methods & Equip - Test factilities and equipment
14-04 - " " " - Reliability
15-02 - Military Sciences - Chem. Biol. Rad.
15-06 - " " - Nuclear effects
19-03 - Ordnance - Combat vehicles
19-05 - " - Fire Control
19-06 - " - Guns

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

276 8. MAJOR EQUIPMENT:

560,000 acres of real estate which includes 3 multipurpose sites; a network of vehicles maintenance shops, supply complex, photographic-graphic arts instrumentation shop, calibration facility. Facilities have capabilities of test support and technological assistance for armor infantry artillery, aircraft, nuclear biological and chemical.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

AVIATION MATERIEL LABORATORIES
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR OPERATED
C. CONTRACTOR:

2. DIRECTOR: Col. John R. Adie, CO
A. TECHNICAL DIRECTOR: Larry M. Hewin

3. LOCATION: A. Newport News (Nearest City) B. Isle of Wight (County) C. Virginia (State)

4. P. O. ADDRESS: Aviation Materiel Laboratories
A. Fort Eustis (City) B. Virginia (State) C. 23604 (Zip Code) D. A.C. 703 878-3506 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 181
B. ALL OTHER PERSONNEL (Total): 175

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 5.780 Million
B. EXTRAMURAL (Total): $ 16.558 Million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conduct research, exploratory development, and advanced development connected with Army aircraft, related components and equipment, and associated military sciences. Conduct engineering development programs and provide support to Army air operational systems development programs.

Dev adv aero technology incl aerodynamics, structures, propulsion, stability and control, etc. Dev new family of adv acft turbine engines. Dev acft adv dsgn anal and sys integration methods. Provide new means/methods for improved acft maint, reliability, surviv and safety. Conduct wind tunnel and flt rsch acft prog and adv dev of acft subsys and equip. E.G., cargo hdlg and fld support. Conduct long range R&D planning. Labs structures fab and rsch, armor dynamics, instr, data reduc, fuel oil analysis, exper fab shops and flt hangar.

01-01 Aeronautics - Aerodynamics
01-02 " - Aeronautics
01-03 " - Aircraft
01-04 " - Aircraft flight instrumentation
21-01 Propulsion & Fuels - Air breathing engines
21-05 " " " - Jet and gas turbine engines
21-07 " " " - Reciprocating engines

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

278 **8. MAJOR EQUIPMENT:**

Equip. filament winding, fatigue testing, vibra sys 5HZ-10KHZ, tensile test, non-destruc test, 30-cal to 20mm ballistics range, flame propagation, A-D convertor, electro plotter, IBM 360-44, calib, envir test chambers atomic absorp spectr, and telemetering gnd station.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

AVIATION TEST ACTIVITY
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Edward P. Preisendorfer, LTC A. TECHNICAL DIRECTOR: CMDR James S. Hayden

3. LOCATION: A. Lancaster (Nearest City) B. Kern (County) C. California (State)

4. P. O. ADDRESS: Aviation Test Activity

A. Edwards AFB (City) B. Calif. (State) C. 93523 (Zip Code) D. A.C. 805 277-2378 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 59

B. ALL OTHER PERSONNEL (Total): 138

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 3.558 Million

B. EXTRAMURAL (Total): $ .025 Million

7. MAJOR FUNCTIONS AND ACTIVITIES (include COSATI Codes):

Conduct engineering flight tests of air vehicles developed or procured as integrated systems and air vehicles proposed for Army application and advanced concepts having potential military application produce test data on basic air vehicle performance handling qualities, etc.

14-02 Methods and Equipment - Test facilities & equip
14-04 " " " - Reliability
01-03 Aeronautics - Aircraft

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

No major equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

BALLISTIC RESEARCH LABORATORY
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

281

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Robert J. Eichelberger
A. TECHNICAL DIRECTOR: Dr. Robert J. Eichelberger

3. LOCATION: A. Aberdeen (Nearest City) B. Harford (County) C. Maryland (State)

4. P. O. ADDRESS: Ballistic Research Laboratory
A. Aberdeen Proving Ground (City) B. Maryland (State) C. 21005 (Zip Code) D. A.C. 301 278-5201 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 431
B. ALL OTHER PERSONNEL (Total): 229

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 14.303 Million
B. EXTRAMURAL (Total): $ 5.189 Million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conduct rsch and exploratory development in the sciences/technologies which are necessary for conceiving designing developing and evaluating wpns systems pursue oriented fundamental rsch in physics chem mathematic engr and biophysics invest pertinent branches mili science technology.

Attainment of theoretical understanding of the gas dynamics processes in gas-actuated rifles now offers a rational basis for the design of gas actuating systems in automatic wpns a system of programs for manipulating algebraic symbols on the BRL computer permits an electronic computer to perform many of the tedious math manipulations of applied research an interferometric technique provides a method for obtain continuous displacement-time data for an impact-loaded solid measurement and anal of the performance of an artillery shell over its entire trajectory have provided info that should lead to the design of stable projectiles the identification of complex nitric oxide and water molecules which are of great importance in equilibrium concentrations of elections in the ionosphere.

07-04 Chemistry - Physical Chemistry
09-02 Electronics & Electrical Engineering - Computers
12-01 Mathematical Sciences - Math and Statistics
12-02 " " - Operations Research
16-02 Missile Technology - Missile trajectories
20-08 Physics - Particle physics
20-11 " - Solid mechanics
20-12 " - Solid state physics

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Computers and various special ordnance test facilities plus the usual general type laboratory equipment.

Gun probe telemetry/tracking facility
Balloon launch and tracking facility
Antenna research and electromagnetic propagation range
Laser propagation research facility
Interior, exterior, terminal ballistics facilities
Supersonic and hypersonic wind tunnels Mach 1.25 to 9.2
Explosion kinetics facility

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT:

BEHAVIORAL SCIENCE RESEARCH LABORATORY
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

283

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. J. E. Uhlaner A. TECHNICAL DIRECTOR: LTC L. J. Greeley

3. LOCATION: A. Washington *(Nearest City)* B. *(County)* C. D. C. *(State)*

4. P. O. ADDRESS: Behavioral Science Research Laboratory, Commonwealth Bldg.

A. Washington *(City)* B. D. C. *(State)* C. 20315 *(Zip Code)* D. A.C. 202 OX 43411 *(Telephone (Area Code & No.)*

5. PERSONNEL: (As of June 1969): 69

A. R&D PROFESSIONALS (Total):

B. ALL OTHER PERSONNEL (Total): 49

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 1.728 million

B. EXTRAMURAL (Total): $ 1.020 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research in behavioral science and operations research supporting broad areas of personnel management, human performance experimentation and manned systems research. Research conducted in and for Dept. Army to meet objectives of Army-wide significance and research directed toward optimal employment of Army personnel in variety of military settings.

Additional RDT&E funding provided for in-house lab independent research, basic research and for special DOD assignments. Program comprises 4 research areas:

1. Personnel management research--selection. This effort is concerned with predicting individual human performance effectiveness;

2. Personnel management research--manpower management, concerned with evaluation and selection of personnel management policies through ops research modeling.

3. Human performance experimentation, concerned with improving functional portions of performance--crit behavior in jobs.

4. Manned system research, concerned with improving total systems performance as relates to human performance--groups of jobs. This research involves experimentation with various configurations of systems components considering interactions with trade-offs with goal of improving human performance and systems effectiveness.

05-09 Behavioral & Social Sciences - Personnel selection, trng & eval.
05-10 " " " " - Psychology

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

No major equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

BIOLOGICAL LABORATORIES
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: CO Col E. M. Gershater
A. TECHNICAL DIRECTOR: Riley D. Housewright, PhD

3. LOCATION: A. Frederick (Nearest City) B. Frederick (County) C. Maryland (State)

4. P. O. ADDRESS: Fort Detrick Biological Laboratories
A. Frederick (City) B. Maryland (State) C. 21701 (Zip Code) D. 301 MO 3-4111 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 492
B. ALL OTHER PERSONNEL (Total): 1427

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 23.523 M
B. EXTRAMURAL (Total): $ 6.754 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Mission: Operate commodity center for biological defensive systems and data required for threat analysis with DoD.

06-13 Biological & Medical Sciences - Microbiology
06-15 " " " " - Pharmacology
06-17 " " " " - Protective Equipment
06-20 " " " " - Toxicology
15-02 Military Sciences - Chem, Biological, and Radiological Warfare

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES
Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Complete facilities to develop and test mission items including: Biological Sciences Laboratory, Plant Sciences Laboratory, Aerobiology and Aerosol Evaluation Laboratory, Biol. Agent Research and Engineering Laboratory, Biol. Commodity Development Laboratory, Medical Sciences Laboratory and Industrial Health and Safety Facility.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

CENTER FOR RESEARCH IN SOCIAL SYSTEMS
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☒ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR: The American University, Center for Research in Social Systems

2. DIRECTOR: Dr. Preston S. Abbott
   A. TECHNICAL DIRECTOR: -

3. LOCATION: A. Washington (Nearest City) B. -- (County) C. D. C. (State)

4. P. O. ADDRESS: 5010 Wisconsin Avenue, Northwest
   A. Washington (City) B. D.C. (State) C. 20016 (Zip Code) D. Area Code 202 244-7300 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 62
   B. ALL OTHER PERSONNEL (Total): 81

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 1,860,000
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The American University Center for Research in Social Systems (CRESS) conducts social science research under a contract with the Department of the Army. It has two components:

(1) The Social Science Research Institute (SSRI) conducts social science research in support of Department of the Army's mission in fields such as Internal Defense and Development, Psychological Operations, Military Assistance Programs, and studies and evaluations of foreign cultures (05/15) SSRI's Work Program is in four research areas: I. Cross-cultural Studies of Communication and Institutional Research (05/07, 05/10, 05/11); II. Military Civic Action and Community Relations: Military and Cultural Implications (05/11, 15/07); III. The Implications of Foreign Social Systems in U. S. Military Operations (05/03, 05/04, 05/10, 05/11, 05/09, 15/07, 15/04); and IV. Research on and Relevant to U. S. Military Operations in Internal Defense and Internal Development (05/03, 05/04, 05/11, 15/04, 15/07).

(2) The Cultural Information Analysis Center (CINFAC) mission is to collect, store, and retrieve raw data, information and completed studies; to maintain a capability to produce limited subject studies in depth; and, to provide a bibliographic service. COSATI Code Areas within CINFAC scope: 15/07, 05/02, 05/03, 05/04, 05/10, 05/11. In FY 1969, CINFAC completed 329 responses: 78 written reports, 134 consultations, lectures, etc., and 117 documents provided from previous work.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

No major equipment.

9. COMMENT AND PUBLICATION REFERENCES:

ANNOTATED BIBLIOGRAPHY OF CRESS PUBLICATION AND REPORTS, AD 849-210L (Dec 68)
ANNOTATED BIBLIOGRAPHY OF CRESS REPORTS, AD 688-188 (Dec 68)

CRESS is supported by research, development, test and evaluation (RDT&E) funds. (05/02, 05/15) The Work Program is monitored by the Behavioral Sciences Division of the Office of the Chief of Research and Development (OCRD). As specified in Army Regulation 70/8, this monitoring office, assisted by the recommendations of the Army Human Factors Research Committee (AHFRAC), establishes and coordinates priorities for Army research requirements.

The Army Research Office and the American Institutes for Research are presently negotiating a contract to assume the existing CRESS/American University obligations. Effective date for the new contract is expected to be on or about 1 November 1969.

Requests for CINFAC services should: identify information needed precisely; state the context within which the requested information will be used; and set a deadline. Any action officer within the U.S. Government or a governmental contractor in an official capacity may initiate a request for CINFAC services directly to:

Center for Research in Social Systems
5010 Wisconsin Ave., N.W.
Washington, D. C. 20016
ATTN: Manager, CINFAC Phone: (202) 244-7300

10. DATE OF REPORT: 30 Sept 1969

COATING AND CHEMICAL LABORATORY
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

289

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Charles F. Pickett
A. TECHNICAL DIRECTOR: Dr. Charles F. Pickett

3. LOCATION: A. Aberdeen (Nearest City) B. Harford (County) C. Maryland (State)

4. P. O. ADDRESS: Coating and Chemical Laboratory
A. Aberdeen Proving Ground (City) B. Maryland (State) C. 21005 (Zip Code) D. A.C. 301 278-5201 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 81
B. ALL OTHER PERSONNEL (Total): 0

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 0.950 Million
B. EXTRAMURAL (Total): $ 1.577 Million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Manage and direct the assigned portion of AMC mat and fuels and lubes program to include basic and applied research in auto chemicals, organic and semiorganic coatings point, cleaners, fuels and lubes. Coordinate the research program of AMC in the field of fuels and lubes and related materials.

Conduct basic and applied research and engineering investigation in the fields of auto chemicals, organic, semiorganic, conversion coatings, cleaners, fuels and lubricants.

Participate in in-process reviews in assigned fields with AMC major subordinate commands and project managers.

Participate in the standardization and industrial preparedness programs prepare and maintain the product qualification records in assigned fields.

07-04	Chemistry	- Physical chemistry
11-03	Materials	- Coatings, colorants, finishes
11-08	"	- Oils, lubricants, hydraulic fluids
11-11	"	- Solvents, cleaners, abrasives

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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290 8. MAJOR EQUIPMENT:

Major equipment spectrophotometers, accelerated weathering machine, corrosion test cabinets, gas chromatographs, humidity chambers, fuel coker, temperature flow corrosion unit, sub zero test cabinet, stroking unit, brake fluid.

Facility capabilities, two general purpose lab bldgs and exposure farm.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

Cold Regions Research and Engineering Laboratory
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: LTC John E. Wagner
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Hanover (Nearest City) B. Grafton (County) C. New Hampshire (State)

4. P. O. ADDRESS: Cold Regions Research and Engineering Laboratory
A. Hanover (City) B. N. H. (State) C. 03755 (Zip Code) D. A.C. 603 643-3200 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 132
B. ALL OTHER PERSONNEL (Total): 115

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 3.856 Million
B. EXTRAMURAL (Total): $ .249 Million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research and surveillance of technology for Army needs in cold regions including materials techniques and events unique to cold environments and to design of material for use therein and furnishing advice and assistance to Army and DoD.

Basic properties and military uses of snow ice and frozen ground improved capability for military operations in cold regions. Development of field manuals for Army use. Cold fog control and IR attentuation in such fogs. Technical advice and asst to Army and DoD agencies. Criteria for design of military materiel for use in extreme environments. Heat sink concepts and applications. Rapid excavation of frozen ground. Conduct research on materials techniques and events for extreme climates. Provide guidance and assistance to Army and DoD for extreme climates.

06-07	Biological & Medical Sciences	- Escape, rescue, and survival
08-04	Earth Sciences & Oceanography	- Geochemistry
08-06	" " " "	- Geography
08-12	" " " "	- Snow, Ice & Permafrost
08-13	" " " "	- Soil Mechanics

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Unique modern laboratory with cold rooms and special apparatus for tests and analysis of snow ice and frozen ground.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

CONSTRUCTION ENGINEERING RESEARCH LABORATORY — INSTALLATION

DOD (ARMY) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Col. Edwin S. Townsley
A. TECHNICAL DIRECTOR: Dr. Louis R. Shaffer

3. LOCATION: A. Urbana (Nearest City) B. Champaign (County) C. Illinois (State)

4. P. O. ADDRESS: Construction Engineering Research Laboratory
A. Urbana (City) B. Illinois (State) C. 61801 (Zip Code) D. 217 352-6511 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 31
B. ALL OTHER PERSONNEL (Total): 100

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 2.871 M
B. EXTRAMURAL (Total): $ .000 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Develops concepts and technology in design, building, O&M facets of construction requirements by utilizing systems approach to life cycle of facility.

Conducts systems-oriented R&D in fields of construction materials utilization and environment, on procedures and organization within Corps, and on dissemination of construction research results.

Designs and provides basis for implementing systems approach to all aspects of building process and facilities operation, including vertical construction, housing and pavements, with emphasis on incorporating man-machine systems.

Develops computer-aided analysis of power systems and equipment and develops power systems for hardened facilities.

08-13 Earth Sciences and Oceanography - Soil Mechanics
11-03 Materials - Coatings, Colorants, and Finishes; 07- Miscellaneous Materials
13-01 Mech, Indus, Civil & Marine Engrg.- Air Conditioning, Heating, Lighting & Ventilating; 02- Civil Engineering; 03- Construction Equip, Materials and Supplies; 13- Structural Engineering.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

No major equipment.

Unique structural test floor, equipped with closed-loop hydraulic load cell systems, permits full-scale testing of structural elements and connections.

Systematic rapid assessment and introduction of construction material is accomplished through special loading devices, high-rate dynamic loaders and unique equipment to determine engineering properties, response behavior and utilization.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

INSTALLATION: DENTAL RESEARCH INSTITUTE

AGENCY OR DEPT.: DOD (ARMY)

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
   (1) ☒ GOVERNMENT-OPERATED
   (2) ☐ FFRDC
   (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
   (1) ☐ GOVERNMENT-OPERATED
   (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Col. Richard L. Howard, DC
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Washington (Nearest City) B. -- (County) C. D.C. (State)

4. P. O. ADDRESS: Dental Res. Inst., Walter Reed Army Medical Center
A. Washington (City) B. D.C. (State) C. 20012 (Zip Code) D. Area Code 202 576-3450 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 39
B. ALL OTHER PERSONNEL (Total): 49

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 0.947 Million
B. EXTRAMURAL (Total): $ .067 Million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conduct research in the etiology, prevention, and control of oral diseases of military significance.

Major functions are to develop simplified techniques of dental treatment, conduct investigations on properties of dental materials, and conduct education and training programs in dentistry.

06-05 Biol. & Medical Sciences - Clinical medicine - dentistry
06-09 " " " " - Personal Hygiene

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Present major equipment- atomic absorption spectrophotometer, instron stress/strain testing machine, and hitachi electron microscope - is receiving full utilization under existing facility capabilities. Expanded utilization capabilities for either are nonexistent for other than mission related in-house activities. Any expanded capabilities would have to be provided by out-of-house manpower resources.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

DESERET TEST CENTER LABORATORIES
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Col. Robert Muldrow, CO
A. TECHNICAL DIRECTOR: Mr. Mortimer Rothenberg

3. LOCATION: A. Dugway (Nearest City) B. Tooele (County) C. Utah (State)

4. P. O. ADDRESS: Deseret Test Center
A. Dugway (City) B. Utah (State) C. 84222 (Zip Code) D. 801 524-5500 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 347
B. ALL OTHER PERSONNEL (Total): 1124

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 32.761 M
B. EXTRAMURAL (Total): $ 3.200 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Mission: Operate a CB proving ground for U.S. Army. Plan, conduct or participate in tests of CB munitions, agents and other materiel. Plan and conduct field and lab tests, and investigate CB meteorology, ecology and epidemiology. Plan, monitor and participate in joint operational tests.

14-02	Methods and Equipment - Laboratories, Test Facilities and Test Equipment
14-04	" " " - Reliability
15-02	Military Sciences - Chemical, Biological, and Radiological Warfare

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Instrumented grids that range in size from 1800 feet square to 150 square miles. Supporting test guns and other mobile field equipment. Six mobile cinetheodolites (Contraves), four tracking telescopes, 100 inch and 200 inch optical lens (Sextant), recording cameras, high speed and normal with film sizes 16mm to 70mm, laboratory processing 16 and 35mm color motion picture film, EKCo ME-4 process, 50 fpm. Six station ballistic camera system. Arctic Chamber 16'W x 20'L x 11'H Door 7'W x 9'H, ambient to -71°C; Tropic Chamber 21'W x 25'L x 16'H Door 7'W x 8'H, ambient to +60°C; Desert Chamber 21'W x 25'L x 16'H Door 7'W x 9'H, ambient to +75°C; Chamber, -60°C to +90°C, 8'W x 8'H x 12'L, Mobile; Chamber, sand and dust, 8'W x 8'H x 25'L, Meets MIL STD 810A; Chamber, fungus exposure, 8'W x 8'H x 25'L, Meets MIL STD 810A; Chamber, rain 8'W x 8'H x 17'L, 2.5 to 5.0 gal per sq ft per hr; Chamber, altitude, 4300 to 70,000 ft, -70°C to +120°C, controlled humidity, 6'W x 6'H x 7'L; Chamber, salt fog, 8'W x 8'H x 25'L, Meets MIL STD 810A. Computer, IBM 1620, Model 1, 20K Stored Program, Card Input/Output; Card Read/Punch, IBM 1622, Model 2, 500 CPM input, 250 CPM Output; Printer, IBM 1443, Model 2 600/350/240 LPM.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT:

DEVELOPMENT AND PROOF SERVICES
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: James J. Jones, Col. Inf.
A. TECHNICAL DIRECTOR: R. P. Witt, Civ Tech Dir

3. LOCATION: A. Aberdeen (Nearest City) B. Harford (County) C. Maryland (State)

4. P. O. ADDRESS: Development and Proof Services
A. Aberdeen Proving Ground (City) B. Maryland (State) C. 21005 (Zip Code) D. A.C. 301 278-2556 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 248
B. ALL OTHER PERSONNEL (Total): 1163

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 26.095 Million
B. EXTRAMURAL (Total): $ .429 Million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Plan, conduct, recommend and report results of engineering and other tests of weapons, weapons systems, rockets and guided missile systems. fire control. surveillance and target acquisition equipment, items of ammunition, combat vehicles and other automotive materiel. Compile requirements for determination of usage factors, procurement instructions and controlled issue of armor plate for tests by USAMC installations and activities.

Plan, direct and control an R&D program for test instrumentation, test facilities and test methodology to support current and future requirements in assigned mission area. Design, develop, process and issue ballistic and other test instrumentation required by test plans, changes in test methodology or improvement of operational effectiveness.

14-02 Measuring, testing
14-04 Reliability

19-01 Ammunition, Explosives, Pyrotechnics
19-02 Bombs
19-03 Combat Vehicles
19-04 Explosions, Ballistics, Armor
19-05 Fire Control
19-06 Guns
19-07 Rockets

A. ADDITIONAL COSATI CODES:
See 19 series above.

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

300 8. MAJOR EQUIPMENT:

Test area of 68700 acres

Range to land impact, 26000 meters. Range to water impact 30000 meters.

Forty-one miles of automotive courses including 27 special engineering test courses and obstacles. Various environmental or conditioning equipment. Special chambers for subjecting equipment to dust, salt, spray, or simulation with temperature conditioning.

Isolated vibration test facility which permits shaking explosive equipment simultaneously with temperature conditioning.

Facility for conducting tests of electronic control and guidance, equipment.

High frequency source which permits testing all types of material in the presence of a high intensity electro magnetic radiation.

Special facility for test of armor plate.

Special velocity and target equipment for observations during rapid fire; rocket track for controlled terminal ballistic tests.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

EDGEWOOD ARSENAL LABORATORIES — INSTALLATION

DOD (ARMY) — AGENCY OR DEPT.

301

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: CO Paul R. Cerar, Colonel
   A. TECHNICAL DIRECTOR: Merl G. Ringenberg

3. LOCATION: A. Edgewood (Nearest City) B. Harford (County) C. Maryland (State)

4. P. O. ADDRESS: Edgewood Arsenal Laboratories
   A. Edgewood (City) B. Maryland (State) C. 21010 (Zip Code) D. 301 676-1000 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 858
   B. ALL OTHER PERSONNEL (Total): 898

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 43.212 M
   B. EXTRAMURAL (Total): $ 11.131 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Mission: A Class 11 activity conducting a research and development mission for Army chemical munitions and chemical/biological defensive items. Includes basic research as well as exploratory, advanced and engineering development of materiel.

15-02 Military Sciences - Chem, Biological, and Radiological Warfare
19-01 Ordnance - Ammunition, Explosives, and Pyrotechnics
19-02 " - Bombs

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Major equipment consists of a complex of engineering and laboratory areas and includes chemical pilot plants, munitions fill, engineering design and experimental fabrication shops. Aerosol dissemination test chambers, pyrotechnic mixing, loading and handling facility. Indoor ball. range, 2 subsonic, 1 supersonic, wind tunnels. A complete clinical research facility. Animal breeding and holding facility. Laboratory thus has capability to perform research on chemical agents, material concepts, and to develop, fill and test experimental chemical munitions and defensive materiel.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

ELECTRONICS LABORATORIES
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: (CG) MG Walter E. Lotz, Jr.
A. TECHNICAL DIRECTOR: Dr. Robert S. Wiseman

3. LOCATION: A. Eatontown (Nearest City) B. Monmouth (County) C. New Jersey (State)

4. P. O. ADDRESS: Electronics Laboratories, Electronics Command
A. Ft. Monmouth (City) B. New Jersey (State) C. 07703 (Zip Code) D. Area Code 210 532-9000 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 1777
B. ALL OTHER PERSONNEL (Total): 2366

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): \$ 98.815 million
B. EXTRAMURAL (Total): \$ 102.594 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conduct experimental research in physical sciences and applied research and development in electronics materials, devices, components, assemblies, avionics, systems engineering, communications equipment and systems, adpe, electronic warfare, night vision, surveillance, atmospherics, and electromagnetic combat and interference.

The labs research and develop electronic components, equipments, and systems in their respective mission areas. About one half of the workload is accomplished under contract by outside sources. In-production and in-service items are covered by laboratory engineering support. (Prototype installations for existing devices in new vehicles, etc.)

01-04 Aeronautics - Aircraft flight instrumentation; 04-01 Atmospheric Sciences - Atmospheric physics; 07-05 Chemistry - Radio and radiation chemistry; 09-01 - Electronics & Electrical Engrg. - Components; 02 - Computers; 03 - Engineering; 05 -Subsystems; 06 - Telemetry; 10-01 Energy Conversion - Conversion Techniques; 02 - Power Sources; 03 - Energy Storage; 17-02 - Navigation, Communication, Detection, Countermeasures - Communications; 02.1 - Radio Communications; 04 - Electromag & Acoustic Countermeasures; 05 - Infrared and Ultraviolet Detection; 09 - Radar Detection

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Testing chambers for environmental stress, shock, etc., from cabinet-size up to drive-in size; Cryogenic facilities, complete fabrication machining, metal working, plastics, woodworking, plating, and others.

Upwards of 50 aircraft for test-flying developmental devices.

Facilities are geographically scattered.

Remote access teletypewriters provide access to the ecom computer for scientific personnel developing their own computer programs.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

ELECTRONIC PROVING GROUND	DOD (Army)
INSTALLATION	AGENCY OR DEPT.

305

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Col. Maynard C. Raney, CO A. TECHNICAL DIRECTOR:

3. LOCATION: A. Tucson (Nearest City) B. Cochise (County) C. Arizona (State)

4. P. O. ADDRESS: Electronic Proving Ground

A. Ft. Huachuca, Sierra Vista (City) B. Ariz. (State) C. 85613 (Zip Code) D. 602-538-6891 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 159
B. ALL OTHER PERSONNEL (Total): 594

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 13.84 million
B. EXTRAMURAL (Total): $ 3.794 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The U. S. Army Electronic Proving Ground (USAEPG) has as its major responsibility the engineering and service tests of communications-electronics systems and individual items.

Principal fields of endeavor are field testing of electronic equipment in the areas of communication, combat surveillance, avionics, automatic data processing, and electronic warfare.

14-02	Methods & Equip	- Test facilities and equip.
14-04	" " "	- Reliability
17-04	Navig, Comm, Detection, Countermeasures	- Electromag & acoustic countermeasure
19-01	Ordnance	- Ammo, Explosives, Pyrotechnics
19-03	"	- Combat vehicles
19-05	"	- Fire Control

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Field and workshop facilities are available for a wide range of tests on communications-electronic equipment, ground-based and airborne, in manned and unmanned aerial vehicles, reception and reduction of space position data of airborne vehicles, and measurements of meteorological parameters. The Proving Ground has a network of integrated field instrumentation sites and test support facilities in the vicinity of Fort Huachuca. Other sites are located in the southern one-third of the state of Arizona.

Equipment and capabilities include the range support equipment and the ranges established for these test functions.
Tracking System Test Facility - 250 mile range.
Target acquisition and tracking facility.
Drone launch facility.
Radar resolution facility.
Optical and infrared resolution facility.
Antenna Test and eval complex.
Radiac test facility.

9. COMMENT AND PUBLICATION REFERENCES:

This overall complex is in a geographical location of sparse population and limited industrial activity and provides areas which are relatively free of electrical interference from outside sources, and permitting a high level of electromagnetic test activity without inconvenience to the surrounding civil environment. Test areas are generally remote from commercial air lines carrying heavy traffic. Extremes of weather in the vicinity of Fort Huachuca are of short duration and cause little interruption to scheduled field tests.

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

ENGINEER REACTOR GROUP
INSTALLATION

DOD(ARMY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Col. Robert L. Ednie
A. TECHNICAL DIRECTOR: Homer D. Musselman

3. LOCATION: A. Washington, D.C. (Nearest City) B. Fairfax (County) C. Virginia (State)

4. P. O. ADDRESS: Engineer Reactor Group
A. Fort Belvoir (City) B. Virginia (State) C. 22060 (Zip Code) D. A.C. 703 664-5221 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 83
B. ALL OTHER PERSONNEL (Total): 57

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 2.934 Million
B. EXTRAMURAL (Total): $ .676 Million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Provide field and depot maintenance support to operating military land based nuclear power plants and barge-mounted nuclear and designated fossil-fueled power plants for land operations worldwide.

Exploitation of nuclear energy to produce electrical and mechanical power for military use.

18-05 Nuclear Science & Technology - Power Plants
18-06 " " " " - Radiation shielding and protection
18-09 " " " " - Reactor engineering and operation
18-12 " " " " - Reactors (power)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Major equipment includes two stationary one floating nuclear power plants, crew training facilities and maintenance equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

ENGINEER TOPOGRAPHIC LABORATORY
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

309

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Colonel John R. Oswalt, Jr. A. TECHNICAL DIRECTOR: Mr. Gilbert G. Lorenz

3. LOCATION: A. Washington, D. C. *(Nearest City)* B. Fairfax *(County)* C. Virginia *(State)*

4. P. O. ADDRESS: Engineer Topographic Laboratory

A. Ft. Belvoir *(City)* B. Va. *(State)* C. 22060 *(Zip Code)* D. A.C. 703 664-5448 *(Telephone (Area Code & No.)*

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 128
B. ALL OTHER PERSONNEL (Total): 107

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 4.346 Million
B. EXTRAMURAL (Total): $ 5.509 Million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Principal field activity of the Army for accomplishing research and development of equipment, procedures and techniques applicable to the topographic services to include mapping, geodesy and military geographic information.

The U.S. Army Engineer Topographic Laboratories performs basic and applied research, and exploratory, advanced, and engineering development pertaining to topographic mapping, geodesy, surveying, geography and military geographic intelligence. It carries out a program which consists of both internal and contractual efforts addressing the feasibility of concepts as well as the fabrication of prototype and engineering equipment satisfying both general and specific military field and base plant requirements.

08-02 Earth Sciences & Oceanography - Cartography
08-05 " " " " - Geodesy
08-06 " " " " - Geography

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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310 8. MAJOR EQUIPMENT:

No major equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

ENGINEER WATERWAYS EXPERIMENT STATION
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Colonel Levi A. Brown
   A. TECHNICAL DIRECTOR: F. R. Brown

3. LOCATION: A. Vicksburg (Nearest City) B. Warren (County) C. Mississippi (State)

4. P. O. ADDRESS: Engineer Waterways Experiment Station
   A. Vicksburg (City) B. Mississippi (State) C. 39180 (Zip Code) D. 601-636-3111 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 397
   B. ALL OTHER PERSONNEL (Total): 896

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 17.042 million
   B. EXTRAMURAL (Total): $ 1.415 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Military and civilian funded R & D in hydraulic, flexible and expedient pavements, soils, concrete; nuclear weapons effects; vehicle mobility and environmental aspects of military operations.

Technical survaillance of cement and pozzolan testing program.

Current important programs include:

(a) trafficability research to develop means of predicting vehicle performance over natural terrain,
(b) studies of wheel road effects and interaction on pavement of multi-wheel landing gear of heavy aircraft,
(c) hydraulics and mathematical modeling to solve river, tidal, wind-wave and structural problems.

08-08	Earth Sciences and Oceanography - Hydrology and limnology
08-13	" " " " - Soil Mechanics
11-04	Materials - Cement
13-13	Mech, Ind., Civil & Marine Engineering - Structural Engineering

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

WES occupies two reservations containing buildings, test sites, special equipment and other plant facilities. Test sites for special purposes are maintained in other areas on a permanent or temporary basis.

Facilities include flumes of different types and sizes, wave and tide generating machines, drill equipment, a fully equipped soils laboratory, x-ray diffraction and spectroscopy apparatus, a fully equipped concrete laboratory, a large and a small blast load generator, a 200K dynamic loader, mobility test carts, single and multiple wheel load carts for traffic, a blast facility, high and low frequency arbrators, a physical treatment laboratory, a calibration laboratory, an electronics laboratory, GE 420 computer and a GE 115 computer terminal.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

INSTALLATION: FRANKFORD ARSENAL LABORATORIES

AGENCY OR DEPT.: DOD (ARMY)

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Col. Eugene Barberg, CO
   A. TECHNICAL DIRECTOR: Dr. Sidney Ross

3. LOCATION: A. Philadelphia (Nearest City) B. Philadelphia (County) C. Pennsylvania (State)

4. P. O. ADDRESS: Frankford Arsenal Laboratories, Frankford Arsenal,
   A. Philadelphia (City) B. Penna. (State) C. 19137 (Zip Code) D. 215 - JE 5-2900 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 722
   B. ALL OTHER PERSONNEL (Total): 170

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 23.578 million
   B. EXTRAMURAL (Total): $ 15.317 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Frankford Arsenal has a continuous mission for basic and applied research in optics, nonferrous metallurgy, mycology, special lubricants, hydraulic and recoil fluids, small caliber propellants, plating and electrochemical treatment, materials degradation, hyperdynamics, pyrotechnics and explosives.

Performs R&D in the commodity areas of small caliber ammunition, weapons fire control, propellant actuated devices, mechanical time fuzes, and artillery ammunition.

Conducts research in the fields of non-ferrous metallurgy, materials degradation, corrosion prevention, electro-chemical coatings, fluid mycology, and synthetic lubricants.

Componentry assistance is given to the Army's missile mission and to NASA's space mission.

Special support is given to the above development missions in electromechanics, electronics, engineering materials, environmental factors, human factors engineering and nucleonics.

11-06	Materials	- Metallurgy & Metallography
11-08	"	- Oils, lubricants & hydraulic fluids
19-01	Ordnance	- Ammo, explosives and pyrotechnics
19-05	"	- Fire Control
20-04	Physics	- Masers and lasers

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Laser lab, monochrometer spectrophotometer, solid state physics lab, geiger tube diffractometer, electron microscope, crystal growing equipment, electron beam, vacuum film deposition equipment, data acquisition equipment, NMR equipment, dynamic photoelastic stress analysis equipment, flexitron flash x-ray equipment, high speed photographic equipment, space and atmospheric simulator univac SS90 computer and peripheral equipment, special chem coding to eq, info network eq, hydraulic and mech powder mould eq, vac-arc melting furnaces, microscan x-ray analyzer, radio-isotope lab, microbiology lab, tropical climate room EPR spectrometer, diff scan calorimeter, propellant processing lab, special eq for ignition and pyrotechnic rd, 15 firing ranges, high explosives site, 4 pads for point fuze detonation, ballistic measurement eq, doppler radar, spectra photometer k-band, microwave interferometer, optical lab, microwave anechoic chamber, auto-checkout eq and lab.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

GENERAL EQUIPMENT TEST ACTIVITY — INSTALLATION

DOD (Army) — AGENCY OR DEPT.

315

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: LTC Donald W. Alberti TC CO
   A. TECHNICAL DIRECTOR: Dr. Howard W. Hembree

3. LOCATION: A. Petersburg (Nearest City) B. Prince George (County) C. Virginia (State)

4. P. O. ADDRESS: General Equipment Test Activity
   A. Ft. Lee (City) B. Virginia (State) C. 23801 (Zip Code) D. 703-734-3094 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 134
   B. ALL OTHER PERSONNEL (Total): 250

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 4.159 million
   B. EXTRAMURAL (Total): $ .509 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Plan, conduct and report on engineering and service tests of general equipment for the Army. Types of equipment tested include cargo trucks, trailers, mobile laundries, mobile bakery system, self-contained medical unit, refueling systems and cargo carriers.

Coordinate plan conduct and report testing activities directed by USATECOM. Identify potential maintenance problems and determine compatibility of the man-machine system and the safety of items for use by the Army. Recommend as appropriate suitability of material tested for type classification.

14-02	Methods & Equipment	- Test facilities & equip.
14-04	" " "	- Reliability
15-05	Military Sciences	- Logistics

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

316 8. MAJOR EQUIPMENT:

Facilities include experimental kitchen and food test facilities dynamic and static rain course six accelerated wear courses MRE test track movement adaptability line hall and cargo loading adaptability test courses highway and rail testing facility combat effectiveness test facility pol storage tanks radioactive materials storage facilities rough terrain test course fabric exposure site mechanical engineering and fuel lubricants test areas marine and port facilities at Ft. Eustis and beach and ocean front available at Ft. Story for use in logistics-over-the-shore evaluation of test items.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

HARRY DIAMOND LABORATORIES
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: LTC Peter Hexner
A. TECHNICAL DIRECTOR: Mr. Billy M Horton

3. LOCATION: A. Washington (Nearest City) B. – (County) C. D. C. (State)

4. P. O. ADDRESS: Harry Diamond Laboratories

A. Washington (City) B. D.C. (State) C. 20438 (Zip Code) D. Area Code 202 LI 56700 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 505
B. ALL OTHER PERSONNEL (Total): 867

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 19.384 Million
B. EXTRAMURAL (Total): $ 69.372 Million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Perform RD&E on influence, time and command fuzing/signature analysis and target intercept phase of terminal guidance/weapon system synthesis/com/nuclear weapons effects/instrum, measmt and simulation on materials and components/adv energy transformation and control systems/ and fluid technology.

Plan manage and conduct programs in support of assign missions. Manage fluid technology development. Provide consulting services, technical guidance and assistance to AMC/other elements of DA, DoD and other Govt agencies. Maintain a high degree of competence in the application of physical sciences to the solution of military problems.

09-01 Electronics & Electrical Engineering - Components
09-06 " " " " - Telemetry
10-02 Energy Conversion - Power Sources
10-03 " " - Energy Storage
16-03 Missile Technology - Missile Warheads and Fuzes
18-03 Nuclear Science & Technology - Nuclear Explosions
18-08 " " " " - Radioactivity
18-13 " " " " - Reactors
19-01 Ordnance - Ammunition, Explosives, Pyrotechnics
19-04 " - Explosions
20-04 Physics - Fluid Mechanics
20-14 " - Wave propagation

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

318 8. MAJOR EQUIPMENT:

Operate and maintain several highly specialized facilities equipped to support these functions, including flash x-ray and pulse reactor for nucl effects evaluations/anechoic chamber and antenna test range for radio antennas/ high pressure shock tubes for stdy of high temperature gases/mercury arc plasma tube, optical and spectroscopic equipment test range for experimental evaluation of fuzes, components and subsystems/latitude magnetic simulator for signature analysis/telemetry equipment/ and air gun for laboratory simulation of weapon firing forces.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

HUMAN ENGINEERING LABORATORY
INSTALLATION

DOD(ARMY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. John C. Weisz
A. TECHNICAL DIRECTOR: Dr. John C. Weisz

3. LOCATION: A. Aberdeen (Nearest City) B. Harford (County) C. Maryland (State)

4. P. O. ADDRESS: Human Engineering Laboratory

A. Aberdeen Proving Ground (City) B. Maryland (State) C. 21005 (Zip Code) D. Area Code 301 278-5201 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 85
B. ALL OTHER PERSONNEL (Total): 43

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 2.370 Million
B. EXTRAMURAL (Total): $ .893 Million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The facilities of HEL are used to conduct behavioral science research on problems related to design, operation, and maintenance of Army weapon and supporting systems. The research is oriented toward the development of data which is then in turn utilized to assist in the design of future Army materiel. Among the various facilities included are an anechoic chamber, a reverberation chamber, a fixed-wing field simulator, a treadmill, EEG equipment, solid state stimulus programming equipment, closed circuit TV system, noise and vibration producing and measurement and analysis equipment, audiometric facilities, eye movement monitoring and recording system, and a mobile photographic processing facility for black and white, still and motion picture film, together with Ektachrome 35mm color slides. All test ranges and test courses situated at Aberdeen Proving Ground, Maryland, are available to the HEL as required. The laboratories provide a DoD-wide information and analysis service in human factors engineering. The human factors engineering training program provides a human factors engineering training service to all other Army agencies.

05-05 Behavioral & Social Sciences - Human Factors Engineering

05-08 " " " " - Man-medical Relations

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

320 8. MAJOR EQUIPMENT:

No major equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

HUMAN RESOURCES RESEARCH ORGANIZATION
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

321

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: Human Resources Research Organization (HumRRO)

2. DIRECTOR: Dr. Meredith P. Crawford
A. TECHNICAL DIRECTOR: Dr. Meredith P. Crawford

3. LOCATION: A. Alexandria (Nearest City) B. Fairfax (County) C. Virginia (State)

4. P. O. ADDRESS: 300 North Washington Street
A. Alexandria (City) B. Virginia (State) C. 22314 (Zip Code) D. Area Code 703 549-3611 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 111
B. ALL OTHER PERSONNEL (Total): 122

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 4,200,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The general purpose of HumRRO is to improve human performance, particularly in organizational settings, through behavioral and social science research, development, and consultation (05/01, 02, 05, 07, 08, 09, 10, 11).

This mission involves HumRRO scientists in (a) research and development on specific training and education problems (05/09, 10); (b) refinement of the technology of training and education (05/09, 10); (c) research on leadership and management, and on training for these (05/01, 09, 10); (d) studies of techniques for motivating training and performance (05/01, 09, 10); (e) studies of human performance in operational systems (05/05, 08, 09, 10); and (f) teaching the technology of training and education (05/01, 02, 05, 07, 08, 09, 10, 11).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Computer-Based Training Laboratory, consisting of 12 student cubicles, each with input and output devices connected the HumRRO /IBM 360/40 Computer.

Research Laboratory containing teleprompting cuing machines and test equipment used to simulate the jobs of tank drivers and gunners during period of extended operation.

Night-Operations Laboratory consisting of sound-treated experimental rooms for studies of human auditory and visual systems, equipped with special devices for study human performance under reduced illumination.

Research Laboratory, consisting of a sound-proof control room and ten individual subjects' rooms. A closed-circuit TV system interconnects. Equipment includes two Dynagraphs (recording machines) and provides for isolated stimulus and testing to each room, separately or simultaneously.

Research Laboratory, equipped for testing combat acoustical and electronic equipment under simulated conditions, also used for administering programmed instruction.

Learning Laboratory, consisting of 9 sound-proofed cubicles, reception area, and data-reduction area. Equipped with closed-circuit TV, cumulative event recorders, teaching machines, and intracommunication system, permitting experimentation in radically new methods of instruction.

Recording Studios and Control Rooms (2), one of which is used for audio recording of magnetic tapes; the other for TV recording. Audio and TV equipped.

9. COMMENT AND PUBLICATION REFERENCES:

The Human Resources Research Organization (HumRRO), an independent nonprofit corporation, is the successor to the George Washington University Human Resources Research Office (HumRRO). HumRRO operated under the aegis of the University from July 1951 thru August 1969. On September 1, 1969, the new corporation undertook the work previously performed by the "old" HumRRO.

In addition to a Central Office and two Research Divisions (laboratories) in Alexandria, Va., HumRRO has Research Divisions at Fort Knox, Ky.; Presidio of Monterey, Calif.; Fort Benning, Ga.; Fort Bliss, Tex.; and Fort Rucker, Ala.

References:

HumRRO Bibliography of Publications, As of 30 June 1968	(AD-678 839)
HumRRO Bibliography of Publications, As of 30 June 1969	(In Press)
FY 1969 Work Program for the Department of the Army	(AD-686 432
FY 1970 Work Program for the Department of the Army	(In Press)

For additional information: Human Resources Research Organization
ATTN: Research Information Coordinator
300 North Washington Street
Alexandria, Virginia 22314

10. DATE OF REPORT:

INSTITUTE FOR SURGICAL RESEARCH — **INSTALLATION**

DOD (ARMY) — **AGENCY OR DEPT.**

323

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: LTC Basil A. Pruitt, Jr.
A. TECHNICAL DIRECTOR: Dr. Arthur D. Mason, Jr.

3. LOCATION: A. Ft. Sam Houston, San Antonio (Nearest City) B. Bexar (County) C. Texas (State)

4. P. O. ADDRESS: Institute of Surgical Research, Brooke AMC
A. Ft. Sam Houston, San Antonio (City) B. Texas (State) C. 78234 (Zip Code) D. A.C. 512 221-2720 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 71
B. ALL OTHER PERSONNEL (Total): 113

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 2.045 million
B. EXTRAMURAL (Total): $ .000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conduct studies in treatment of thermal and traumatic injuries. Provide care for patients with these types of injuries. Train others in care of such patients.

Current work includes studies of hemodynamic and pulmonary changes in burn patients, evaluation of topical agents for control of infection in burns, study of renal regulation of acid base balance and the pathogenesis of acute renal failure, ultra structural changes of the lung following thermal injury and resuscitation and metabolic and energy balance following thermal injury.

06-01 Biol. & Med. Sciences - Biochemistry
06-15 " " " " - Pharmacology
06-21 " " " " - Wounds - Burns

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Maintains 60 beds for seriously burned and injured patients. Provides laboratory support including capabilities in the fields of pathology (including the use of an electron microscope). Microbiology, experimental surgery, renal physiology and biochemistry. An animal colony, electronic shop and machine shop are also maintained.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

LIMITED WAR LABORATORY
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Col. R. A. Axelson
A. TECHNICAL DIRECTOR: Dr. R. D. Shelton

3. LOCATION: A. Aberdeen (Nearest City) B. Harford (County) C. Maryland (State)

4. P. O. ADDRESS: Limited War Laboratory
A. Aberdeen P.G. (City) B. Maryland (State) C. 21005 (Zip Code) D. A.C. 301 278-4055 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 77
B. ALL OTHER PERSONNEL (Total): 69

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 5.265 Million
B. EXTRAMURAL (Total): $ 4.103 Million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

To provide a centralized RDTE activity with a quick reaction capability for meeting Army operational requirements relating to limited war. To generate new ideas for materiel items to improve the effectiveness of military personnel committed to limited warfare actions.

The unique feature of the LWL mission is quick response. The laboratory responds to operational requirements for R&D of materiel pertinent to operations in remote or underdeveloped areas. The lab has in-house capability in all major scientific areas.

06-07 Biol. & Medical Sciences - Escape rescue survival
17-02 Navigation, Communications, Detection, Countermeasures - Communications
17-02.1 " " " " - Radio Communications
17-08 " " " " - Optical detection
19-01 Ordnance - Ammunition, explosives, pyrotechnics
19-04 " - Explosions, ballistics, armor
19-05 " - Fire control
19-06 " - Guns

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

The organization contains 7 small well equipped working labs in comm/electronics, munitions, mobility, environment and survival, applied chemistry, applied physics and biological sciences. Further, the laboratory has in-house design and prototype fabrication capability in metals and wood. The organization is assigned an 80 acre test facility for developmental testing of pertinent items and is located at APG, Md. where many major testing facilities are readily available.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

MATERIALS AND MECHANICS RESEARCH CENTER
INSTALLATION

DoD (ARMY)
AGENCY OR DEPT.

327

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: LTC J. B. Mason
A. TECHNICAL DIRECTOR: Dr. E. Scala

3. LOCATION: A. Watertown (Nearest City) B. Middlesex (County) C. Massachusetts (State)

4. P. O. ADDRESS: Army Materials and Mechanics Research Center
A. Watertown (City) B. Mass. (State) C. 02172 (Zip Code) D. A.C. 617 926-1900 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 244
B. ALL OTHER PERSONNEL (Total): 494

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 10.402 million
B. EXTRAMURAL (Total): $ 2.757 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Manage AMC research and development program in materials and mechanics and conduct technical programs in materials and mechanics used in Army materiel. Manage and conduct basic and applied research on materials such as metals, ceramics, organics, and composites. Conduct theoretical and applied studies on mechanics of structures and mechanics of materials. Identify and investigate basic factors involved in processing and applications of new and improved materials.

Provide advice and technical assistance on materials and mechanics.

Operates DoD non-destructive testing information and analysis center.

Assist in design and development of prototypes.

Develop methods for test and evaluation.

Manage Army portion of defense standardization program.

11-01 Materials - Adhesives and Seals; -02, Ceramics, refractories and glasses; -03, Coatings, colorants, and finishes; -04, Composite materials; -05, Fibers and textiles; -06, Metallurgy and metallography; -07, Miscellaneous Materials; -08, Oils, lubricants, hydraulic fluids; -09, Plastics; -10, Rubbers; -11, Solvents, cleaners, abrasives; -12, Wood and paper products.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Computer and general laboratory equipment plus foundry and machine shop support. Nuclear reactor, open top tank type, thermal, heterogeneous, watercooled and moderated berryllium oxide reflected, highly enriched uranium, 5 megawatts.

Ultrahigh-pressure Sieverts Apparatus (Hydrogen Gas to 1000 Atmospheres); Electronic Dilatometer (1 micron sensitivity); X-ray Diffraction (-269°C to +1500°C); Metallurgical Electron Microscope (4.5 Å resolution, $4x10^5$ direct magnification $4x10^6$ photo magnification from -150°C to +1500°C); Microprobe Analyzer (1 micron probe spot, Na thru U); Automatically programmed dilatometer ($1x10^{-5}$ in. expansion, 0-1500°C, inert atmosphere); 1.60 N/A Visible Light Metallograph (Resolution to 1362 Å); Ultraviolet Microscope; Time-in-Flight Mass Spectrometer; Van de Graff Accelerator (2 Mev); Whisker and Fiber Tension Tester; Arc-Imaging Furnace (2200°C to 3700°C); Infrared Spectrometer and Thermal Emittance Apparatus; Variable Parameter Rocket Nozzle Test Engine; Graphite Resistance Furnace (3000°C, 0.10mm Hg); Galvanic Corrosion and Polarization Unit; Cryogenic Charpy Impact Tester (4° K); Electron Beam Tensile Tester (to 3300°C); Recording True Stress-True Strain Profilometer; Electronic Crack Growth Detector; Ultrasonic Spectroscope; Eddy Current Fourier Analyzer; Infrared Camera; Schlieren Optical Ultrasonic Imaging Equipment; Ultrasonic Transducer-Response Tracer; Electron Beam Melt Furnace (5 in. Dia. x 24 in. long ingot, to 4500°C 60,000 watts); Vacuum Induction Melt Furnace (10^{-7} Torr, 1-1/2 in. dia. ingot); Vacuum Induction Heat Treatment Furnace (2200°C, 10^{-6} Torr 5 in. dia. x 10 in. long); Low-Temperature Heat Treatment Stabilizer (-100°C); 1000 ton forging press; 6000 pound drop hammer.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

MATERIEL SYSTEMS AND ANALYSIS AGENCY
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

329

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Col. Howard C. Metzler, CO
A. TECHNICAL DIRECTOR: Dr. Joseph Sperrazza

3. LOCATION: A. Aberdeen (Nearest City) B. Harford (County) C. Maryland (State)

4. P. O. ADDRESS: Army Materiel Systems and Analysis Agency
A. Aberdeen Proving Ground (City) B. Maryland (State) C. 21005 (Zip Code) D. A.C. 301 278-5201 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 198
B. ALL OTHER PERSONNEL (Total): 48

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 11.973 million
B. EXTRAMURAL (Total): $ 1.887 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Provides a central technical capability for systems analysis within AMC and for continuing improvement in the capability and performance of the total command-wide systems analysis activity.

This laboratory is currently working on a heliborne truck killer program, Shillelagh counter-measures study, laser hazards studies and vehicles system cost models.

14-01 Methods & Equip - Cost benefit analysis
12-02 Mathematical Sciences - Operations Research

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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330 8. MAJOR EQUIPMENT:

No major equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

I

MEDICAL BIOMECHANICAL RESEARCH LABORATORY — DOD (ARMY)
INSTALLATION — AGENCY OR DEPT

331

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
  (1) ☒ GOVERNMENT-OPERATED
  (2) ☐ FFRDC
  (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
  (1) ☐ GOVERNMENT-OPERATED
  (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: LTC Orlyn C. Oestereich, MSC — A. TECHNICAL DIRECTOR: Dr. Fred Leonard, Ph. D.

3. LOCATION: A. Washington (Nearest City) B. --- (County) C. D. C. (State)

4. P. O. ADDRESS: Walter Reed AMC

A. Washington (City) B. D. C. (State) C. 20012 (Zip Code) D. 202 - 576-5151 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 29
B. ALL OTHER PERSONNEL (Total): 14

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 700,000
B. EXTRAMURAL (Total): $ --

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

To conduct fundamental and applied research to develop materials and devices for internal and external biomechanical application and the fabrication of prototype devices of specialized military nature of medical interest.

Evaluate biologic receptivity of internal biomechanical devices and materials. Conduct studies to establish relationship between polymer structure and tissue receptivity. Develop tissue receptive materials of desired mechanical properties for use in the preparation of internal and external biomechanical devices, such as, arteries, tracheas, and heart valves, maxillofacial protheses and orthopedic devices.

06-02 Biological and Medical Sciences - Bioengineering

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

332 8. MAJOR EQUIPMENT:

No major equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission, functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1963

MEDICAL EQUIPMENT R&D LABORATORY — **INSTALLATION**

DOD (ARMY) — **AGENCY OR DEPT.**

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Col. Walter F. Maybaum, MSC A. TECHNICAL DIRECTOR: Benjamin D. Pile

3. LOCATION: A. Flushing *(Nearest City)* B. Queens *(County)* C. New York *(State)*

4. P. O. ADDRESS: MEDICAL EQUIPMENT R&D LABORATORY, FORT TOTTEN

A. Flushing *(City)* B. N. Y. *(State)* C. 11359 *(Zip Code)* D. Area Code 212 321-4070 *(Telephone (Area Code & No.)*

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 16

B. ALL OTHER PERSONNEL (Total): 35

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 1.058 million

B. EXTRAMURAL (Total): $ .000 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conduct engineering research and development leading to production of military medical equipment for the military services, as needed, of medical, dental, veterinary, x-ray, optical, and pest control equipment to include instruments, supplies, set, kits, and outfits.

Conducts research and engineering design associated with the development of items of medical equipment and supplies for military medical field use.

06-02 Biol. & Medical Sciences - Bioengineering - Instrumentation
06-06 Biol. & Medical Sciences - Environmental Biology - pest control equip.
06-12 Biol. & Medical Sciences - Medical & hospital equip.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

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8. MAJOR EQUIPMENT:

Facilities include an electrical-electronics branch equipped with hand meters, oscilloscopes, signal generators, regulated power sources and recorders, a physical testing branch equipped with an instron testing machine, environmental chambers and recorders, a prototype fabrication facility equipped with lathes, milling machines, surface grinders, shears, power brake, power roller, spot welders, foundry, heliarc and gas welding equipment, heat treating oven, paint oven, fabric sewing machines, plastic forming equipment, carpentry and pattern making tools.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

MEDICAL RESEARCH AND NUTRITION LABORATORY — INSTALLATION
DOD (ARMY) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Colonel John E. Canham, MC
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Denver (Nearest City) B. Denver (County) C. Colorado (State)

4. P. O. ADDRESS: Fitzsimons General Hospital
A. Denver (City) B. Colorado (State) C. 80240 (Zip Code) D. Area Code 303 366-5311, x 21108 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 90
B. ALL OTHER PERSONNEL (Total): 113

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 3.126 million
B. EXTRAMURAL (Total): $ .000 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Determine adequacy of troops diet in all environments and recommend nutritional measures for optimal performance. Conduct basic-applied research on medical, surgical and nutritional problems, computer techniques in bio-med areas, food hygiene, physiology of exercise.

Functions - Troop nutrition surveys, ration testing, research on micro-biological agents causing respiratory disease, high terrestrial altitude effects, bio-med computer techniques, basic and applied studies of trace mineral metabolism, nutrient requirements and interrelationships, metabolic response of man to nutrition and disease, comparative pathology of stress of environment and nutrition, physiology and biochemistry of muscle metabolism, exercise and fatigue.

06-16 - Biol. & Medical Sciences - Physiology
06-11 - " " " " - Life Support
06-19 - " " " " - Stress Physiology

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

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8. MAJOR EQUIPMENT:

Facilities and equipment - human metabolic ward, germ-free animals, electron microscopy, environmental test chamber, RCA 301-355 data process system, automated analyzers and recorders including automatic beta and gamma counters, shadow shield whole body counter.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

MEDICAL RESEARCH LABORATORY
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

337

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Col. Ralph H. Forrester, MC
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Ft. Knox (Nearest City) B. Hardin (County) C. Kentucky (State)

4. P. O. ADDRESS: Medical Research Laboratory
A. Ft. Knox (City) B. Kentucky (State) C. 40121 (Zip Code) D. Area Code 502 624-7456 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 78
B. ALL OTHER PERSONNEL (Total): 180

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 2.997 million
B. EXTRAMURAL (Total): $ .000 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research in sensory physiology, biological effects of coherent light, physiological effects of weapons, mechanical and physical systems on soldier performance, blood collection, processing, preservation and transfusion, operation of blood donor center and blood bank fellowship.

06-16 Biol. & Med. Sciences - Physiology
06-21 " " " " - Weapons effects
05-10 Behav. & Social Sciences - Psychology

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

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8. MAJOR EQUIPMENT:

The equipment capabilities of the medical research lab include the following--ruby and CO2 lasers and an electron microscope. Facilities capabilities include an anechoic chamber for studies involving sound. Additionally this unit has functional capabilities in the areas of biophysics, hematology, ergonomics, blood collection and processing, psychophysiology and biochemistry.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

MEDICAL RESEARCH UNIT
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

339

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Col. William A. Akers
   A. TECHNICAL DIRECTOR: Col Marion B. Sulzberger, MD

3. LOCATION: A. San Francisco (Nearest City) B. San Francisco (County) C. California (State)

4. P. O. ADDRESS: Presidio of San Francisco
   A. San Francisco (City) B. California (State) C. 94129 (Zip Code) D. 415--561--5181 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 30
   B. ALL OTHER PERSONNEL (Total): 65

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 0.981 million
   B. EXTRAMURAL (Total): $ .000 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts research on causes of military non-effectiveness, hemorrhagic shock, emphasizing the role of the heart, lungs and central nervous system, early management of maxillofacial injuries and oral disease, and incapacitating skin diseases resulting from high humidity, temperature, friction, fungi and bacteria.

06-06 Biol & Med Sciences - Environmental Biology
06-13 Biol & Med Sciences - Microbiology
06-05 Biol & Med Sciences - Clinical Medicine
06-05 Biol & Med Sciences - Dentistry

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
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8. MAJOR EQUIPMENT:

Equipment such as the 8-channel oscillographic ink recording system for recording EKG-EEG s is invaluable. A newly renovated experimental animal surgery has a new scintillation camera for static and dynamic radioisotopic studies. New labs are equipped to do enzymology, chromatography, bacteriology and mycology.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

MEDICAL RESEARCH UNIT
INSTALLATION

DOD(ARMY)
AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: LTC James C. Burke
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Balboa Heights (Nearest City) B. — (County) C. Canal Zone (State)

4. P. O. ADDRESS: Army Medical Research Unit
A. Balboa Heights (City) B. Canal Zone (State) C. 09827 (Zip Code) D. (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 5
B. ALL OTHER PERSONNEL (Total): 12

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 0.239 million
B. EXTRAMURAL (Total): $ .000 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

In conjunction with other U.S. Government agencies, conducts research on medical and environmental problems of military importance in Central and South America and Panana.

Direct and indirect isolation and identification of parasitic organisms and their vectors in central and South America. Laboratory space adequate for the scientific disciplines of entomology, parasitology and pathology.

06-05 Biol & Med Sciences - Clinical Medicine
06-05 " " " " - Epidemiology
06-05 " " " " - Parasitology
06-13 " " " " - Microbiology

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
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342 **8. MAJOR EQUIPMENT:**

Special equipment and facilities to support these disciplines include--flourescent microscope, auto-technician, cryostat, photomirography, laboratory animal quarters, tissue culture lines, liquid nitrogen plant and access to data-processing service.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

MEDICAL RESEARCH UNIT
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: LTC Francis C. Cadigna, MC
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Kuala Lumpur (Nearest City) B. -- (County) C. Malaysia (State)

4. P. O. ADDRESS: Army Medical Research Unit
A. Kuala Lumpur (City) B. Malaysia (State) C. (Zip Code) D. (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 6
B. ALL OTHER PERSONNEL (Total): 0

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 0.238 million
B. EXTRAMURAL (Total): $ .000 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

To study infectious diseases of potential military importance in equatorial Asia.

Continued research efforts along present lines within the scope of research activities, to provide diagnostic laboratory support for Malaysian civilian and military medical services and for commonwealth military medical services.

06-05 Biol & Medical Sciences - Clinical Medicine
06-05 " " " " - Epidemiology
06-13 " " " " - Microbiology

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
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8. MAJOR EQUIPMENT:

Laboratory space and animal-rearing facilities aee provided by the Institute for Medical Research, Kuala Lumpur, Malaysia.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

MEDICAL UNIT
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Col. Dan Crozier, MC
A. TECHNICAL DIRECTOR: William R. Beisel, MC

3. LOCATION: A. Frederick (Nearest City) B. Frederick (County) C. Maryland (State)

4. P. O. ADDRESS: Fort Detrick, Medical Unit
A. Frederick (City) B. Maryland (State) C. 21701 (Zip Code) D. Area Code 301 663-4111, x 5233 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1968):
A. R&D PROFESSIONALS (Total): 105
B. ALL OTHER PERSONNEL (Total): 298

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 3.773 million
B. EXTRAMURAL (Total): $ 1.450 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Methods for infectious disease management. Conduct studies related to medical defensive aspects of BW in coordination with the Army Material Command and develop appropriate biological protective measures, diagnostic procedures and therapeutic methods.

06-05 Biol and Med Sciences - Clinical Medicine
06-13 " " " " - Microbiology
06-15 " " " " - Pharmacology
06-16 " " " " - Physiology
06-20 " " " " - Toxicology
06-21 " " " " - Weapon effects - CB

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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8. MAJOR EQUIPMENT:

Facilities and equipment are available to study the biochemical, metabolic, immunochemical, bacteriological, pathological ultrastructure by electron microscopy and physical properties of any organism. The new laboratory facilities recently completed will permit investigative work with highly infectious agents as well as routine ones, and extend the capabilities for biologic and bacteriologic research. Also available will be adequate space for small and large animal holding, a cobalt source and supervoltage x-ray equipment for conducting studies relating to infection and radiation. Volunteers are used to test the effecacy of vaccines and other prophylactic and therapeutic agents.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

MISSILE COMMAND LABORATORIES
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Maj Gen Charles W. Eifler, CG A. TECHNICAL DIRECTOR: John L. McDaniel

3. LOCATION: A. Huntsville (Nearest City) B. Madison (County) C. Alabama (State)

4. P. O. ADDRESS: Missile Command Laboratories

A. Redstone Arsenal (City) B. Alabama (State) C. 35809 (Zip Code) D. 205-876-1468 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 735
B. ALL OTHER PERSONNEL (Total): 404

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 36.098 million
B. EXTRAMURAL (Total): $ 42.075 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Army Missile Command is responsible for the integrated commodity management of free rockets, guided missiles, ballistic missiles, target missiles, air defense missile fire coordination equipment, related special purpose and multisystem test equipment, and test equipment which is a part of, or used with, assigned material. This includes missile launching and ground support equipment and missile fire control equipment. The Command manages and/or directs materiel development programs and projects not selected for project management, performs basic and applied research in support of assigned materiel, and performs other research projects as may be assigned.

It also executes assigned missions in support of other AMC or DOD elements having project management or commodity management responsibility for specific weapons technology. The Command provides technical evaluation as well as technical supervision of Missile Command R&D contractor proposals and efforts.

Another function is to plan and conduct engineering design tests, direct the development of test equipment for system instrumentation and determine test requirements of assigned materiel.

09-01 Electronics and Electrical Engineering - Components; 02 - Computers; 03 - Elect. & Electrical Engineering; 06 - Telemetry; 10-02 Energy Conversion - Power Sources; 03 - Energy storage; 15-03.1 Military Sciences - Antimissile defense; 16-01 Missile Technology - Missile launching and ground equipment; 02 - Missile trajectories; 03 - Missile warheads and fuzes; 04 - Missiles; 19-07 Ordnance - Rockets; 21-8 Propulsion and Fuels - Rocket Motors and Engines; 09 - Rocket propellants

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
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8. MAJOR EQUIPMENT:

Guidance and control clean room complex, simulation facilities, RF shielded anechoic chamber, dual position test stand, 8,000 kw jet facility, hvec 2-mv van de graff, 178 ft long laser, x-ray diffractometer and spectrograph, propellant evaluation facility, dynamic modules testers, 13 analog computers, 4 digital computers

McMorrow Labs contains Airborne Intercept Guidance and Control, advance systems, advance sensors, Ground Support Equipment and S&M Labs 286,000 sq ft of space with equipment valued at $17M. T&RE Lab occupies 13,000 acres with facilities and capabilities for flight and track test, systems environment, component test equipment and analytical services.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

The Missile Command also operates two fairly new R&D program centers as part of MCL. The Army Inertial Guidance Management and Technology Center, and the Army Rocket Propulsion Technology and Management Center.

10. DATE OF REPORT: 30 September 1969

MOBILITY EQUIPMENT R & D CENTER
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Col. Russell J. Lamp, CO
   A. TECHNICAL DIRECTOR: William B. Taylor

3. LOCATION: A. Alexandria (Nearest City) B. Fairfax (County) C. Virginia (State)

4. P. O. ADDRESS: Mobility Equipment R&D Center
   A. Fort Belvoir (City) B. Virginia (State) C. 22060 (Zip Code) D. Area Code 703 664-5251 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 525*
   B. ALL OTHER PERSONNEL (Total): 963

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 21.389 million
   B. EXTRAMURAL (Total): $ 71.139 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Responsible for the accomplishment of basic and applied research, design and development and engineering of materiel, methods and techniques; product engineering; standarization; and design testing and evaluation with respect to assigned items of equipment (e.g., rail, marine and amphibious, construction, materials handling, electric power generating, bridging and assault stream crossing, fire fighting, prefabricated buildings, waste disposal, heating and air conditioning, physical security, camouflage and concealment, mine warfare, barrier and intrusion detection, demolitions, water purification, petroleum storage and product engineering and procurement support of surveying and mapping).

13-02 Mechanical, Industrial, Civil and Marine Engineering - Civil Engineering; 03 - Const Equip., Mats & supplies; 04 - Containers & Packaging; 06 - Ground Transportation Equip.; 07 - Hydraul & Pneumatic Equip.; 17-01 Navigation, Comm., Detection & Countermeasures - Acoustic Detection; 05 - Infrared & Ultraviolet Detection; 06 - Magnetic Detection; 08 - Optical Detection; 09 - Radar Detection; 10 - Seismic Detection; 19-01 Ordinance - Ammunition, Explosives, and Pyrotechnics

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Facilities - offices and laboratories with supporting data processing, instrumentation and engrg services shops, test courses and test lanes. Equipment and capabilities include fuel cell and power plant labs, air conditioning and heating Lab, anechoic microwave scattering facility, echo free anachoic chamber for acoustic homing studies, energy conversion research facility, high pressure air compressors, hydraulically actuated test frame for bridges, shock test tube simulating re blast effects emp simulators including high altitude burst effects, power systems simulator, outdoor rain test site, fullscale rail car hump test facility and tropical temperature and humidity test chamber.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

*The Center is authorized 1470 civilian spaces and 33 military. Current staffing includes approximately 500 professional engineers and scientists, 16 of which have PHD's.

10. DATE OF REPORT: 30 September 1969

NATICK LABORATORIES
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Felix J. Gerace, CG
   A. TECHNICAL DIRECTOR: Dale H. Sieling, Ch Sci

3. LOCATION: A. Natick (Nearest City) B. Middlesex (County) C. Mass. (State)

4. P. O. ADDRESS: U. S. Army Natick Laboratories
   A. Natick (City) B. Mass. (State) C. 01761 (Zip Code) D. A.C. 617 653-1000 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 516
   B. ALL OTHER PERSONNEL (Total): 1050

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 20.052 MILLION
   B. EXTRAMURAL (Total): $ 9.213 MILLION

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Accomplish assigned R&D in the physiological, biological and earth sciences and engineering to meet military requirements in the commodity areas of textiles clothing, body armor, organic materials, insect and fungus subs centers food service equipment, field support equipment, tents, and air delivery equipment. In design commodity areas provide technical and engineering support in connection with accomplishment of AE and STD.

06-08 Food processing, preparation, storage, packaging. dispensing
06-17 Protective equipment for man.
11-05 Fibers and textiles (military clothing, parachutes)
19-04 Body armor
15-07 Tactics - Methods of support
Development of freeze desiccation process for food
Development of body armor for aircrewman and infantry
Irradiation of food

A. ADDITIONAL COSATI CODES:
13-04 Industrial Eng. - Containers & Pkg - Methods
13-13 Civil Eng. - Structural- Equip & Supplies
15-15 Military Science - Logistics - Clothing.

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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352 8. MAJOR EQUIPMENT:

Airdrop simulation and testing facilities including drop zone
R&D labs for protective equipment, organic chemistry. fibers and textiles
Geological research laboratories investigate environmental conditions world-wide for military application
Food R&D labs application to food management, biochemistry, logistics
Field equipment development and engineering facility and evaluation facility
Physical sciences facility - organic chemistry, masers-lasers. physical chemistry
Biological research facility - biology, biochemistry, microbiology
Human factors and psychophysiology research facility
RDTE shelters facility
Radiation laboratory
Solar furnace facility
Climatic research chambers for weather simulation and personnel testing of weather items accommodating up to 25 persons.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified borchures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

NUCLEAR DEFENSE LABORATORY — INSTALLATION

DOD (ARMY) — AGENCY OR DEPT.

353

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
  (1) ☒ GOVERNMENT-OPERATED
  (2) ☐ FFRDC
  (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
  (1) ☐ GOVERNMENT-OPERATED
  (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Col. Howard C. Metzler, CO

A. TECHNICAL DIRECTOR: Acting Chief Dr. E. E. Minor

3. LOCATION: A. Edgewood (Nearest City) B. Harford (County) C. Maryland (State)

4. P. O. ADDRESS:

A. Edgewood Arsenal (City) B. Maryland (State) C. 21010 (Zip Code) D. 301- 676-1000 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 82

B. ALL OTHER PERSONNEL (Total): 43

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 2,400,000

B. EXTRAMURAL (Total): $ 399,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conduct research in nuclear weapons effects including initial nuclear radiation residual radiation and fallout/shielding and thermal rad phenomena. Provide technical information and assistance in the fields of radiological and nuclear defense and health physics. Development of radiation transport and shielding codes. Measurement of neutron and gamma rad at underground weapons tests. Development of fallout prediction models and techniques. Research in low-energy nuclear physics. Radiation chem/solid state rad meas techniques. Research on stimulated emission of nuclear radiation.

15-06 Military Sciences - Nuclear Warfare

18-04 Nuclear Science & Technology - Nuclear Instrumentation

18-06 " " " " - Radiation Shielding and Protection

A. ADDITIONAL COSATI CODES:

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8. MAJOR EQUIPMENT:

Major equipment includes a 15-mev tandem van de graaff accelerator 750 kev cockcroft walton positive ion accelerator. Electron microprobe analyzer/pulsed electron source/ESR spectrometer X-Ray diffraction equipment/rad sources/rad test fields/neutron spectrometer.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

PICATINNY ARSENAL LABORATORIES — INSTALLATION

DOD (ARMY) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Col. W. A. Walker

   A. TECHNICAL DIRECTOR: Mr. H. W. Painter

3. LOCATION: A. Dover (Nearest City) B. Morris (County) C. New Jersey (State)

4. P. O. ADDRESS: Picatinny Arsenal Laboratories

   A. Dover (City) B. N. Jersey (State) C. 07801 (Zip Code) D. ~~Area Code~~ 201 328-2100 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

   A. R&D PROFESSIONALS (Total): 1075

   B. ALL OTHER PERSONNEL (Total): 1002

6. FUNDING (Approximate FY 1969 Dollar Obligation):

   A. INTRAMURAL (Total): $ 47.659 million

   B. EXTRAMURAL (Total): $ 23.437 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Picatinny Arsenal has complete in-house capabilities for performing design and development, product, process and maintenance engineering, related quality assurance and complete prototype fabrication on nuclear and conventional munitions such as: artillery and mortar ammunition, nonchemical and nonbiological bombs, mines, grenades, demolition devices, explosives and explosive devices, propellants, pyrotechnics, boosters, JATOs, and rocket and missile warhead sections and related test and handling equipment; impact fuzes, inertial fuzes, safing and arming device and barometric devices. It conducts research with respect to assigned commodities including specialization in the following fields: plastics and adhesives (including basic production engineering investigations of plastics and barrier materials for packaging; solid and liquid propellants, explosives and pyrotechnic compositions; dynamics of materials; and nonmetallic materials other than rubber, greases, lubricants, corrosion preventatives and fuels.

11-09 Materials - Plastics
13-08 Mech. Industrial, Civil and Marine Eng - Industrial Processes
13-09 " " " " " " - Machinery and Tools
19-01 Ordnance - Ammunition, Explosives, and Pyrotechnics
19-02 " - Bombs
19-07 " - Rockets

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

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356 8. MAJOR EQUIPMENT:

Nuclear weapons, prototype fabrication and assembly, and explosives and propellant pilot plants provide complete, integrated facility for assembly, inspection and test of AK and conventional munitions and composites, and mfg. and processing of X explosive and propellant composites. Expl, pyro, propel, mats and Qa labs have unusual equip for res, reliability and Qa, e.g., betatron, dynamitron, high-speed photo and shock load facility, high-altitude test chambers, EM radiation inst, etc., devel and environmental test and eval facilities have major capabilities as static and dynamic test ranges, drop towers, dud recovery and disassembly, RF vulnerability, complete environmental simulation, target effects, etc. Other equip includes vibrators for loads to 2000 lb, static rocket test range, 2540-ton hydrostatic press, computer tape con mfg equip, fuze eval equip, closed-circuit TV, high-acceleration sled track.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT:

RESEARCH ANALYSIS CORPORATION
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: Research Analysis Corporation

2. DIRECTOR: Frank A. Parker
A. TECHNICAL DIRECTOR: Frank A. Parker

3. LOCATION: A. McLean (Nearest City) B. Fairfax (County) C. Virginia (State)

4. P. O. ADDRESS: Research Analysis Corporation
A. McLean (City) B. Virginia (State) C. 22101 (Zip Code) D. Area Code 703 893-5900 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 235
B. ALL OTHER PERSONNEL (Total): 326

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 8,350,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes): The Research Analysis Corporation performs basic and applied research related to the national security of the United States. The corporation's research capability lies mainly in data collection, correlation and analysis using techniques generally identified with operations research and systems analysis. The following organization for research is descriptive of RAC's diverse capability in the physical and social sciences:

A. The Vice President for Operational Systems directs the following RAC Departments: Force Structure, Logistics, Resource Analysis, and Gaming & Simulation. These departments analyze existing organizational structures and systems, and develop and test concepts. (15-05 and 07 Military Sciences-Logistics and Operations, Strategy and Tactics; 12-02 Mathematical Sciences-Operations Research).

B. The Vice President for Technological Systems directs the Advanced Research and Science & Technology Departments. The former is engaged in research methodology development and exploitation of new research techniques. In the latter, technological means are analyzed as they relate to governmental objectives (12-01 and 02 Mathematical Sciences-Operations Research; 15-07. Military Sciences-Operations, Strategy & Tactics.)

C. The Vice President for Economic Political and Social Sciences directs the following Departments: Economic & Social Development, Public Communications & Safety, and Strategic Studies. Strategic interests are assessed, trends are projected and implications developed to assist in governmental planning and policy development, Defense forces, weapons systems, manpower and materiel are analyzed in cost effectiveness studies (05-Behavioral and Social Sciences; 1507 Military Sciences - Operations, Strategy & Tactics.)

A. ADDITIONAL COSATI CODES: 14-01 Methods & Equipment - Cost Effectiveness

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8. MAJOR EQUIPMENT:

Control Data Corporation (CDC) 6400 Computer.

9. COMMENT AND PUBLICATION REFERENCES:

1. RAC Professional Capabilities, Research Analysis Corporation, June 1966

2. Capabilities & Background Applicable to Government and Industry. RAC-ADM-PUB-19, Research Analysis Corporation (no date).

3. Capabilities for Domestic Progress, Research Analysis Corporation, Spring 1969.

4. Annual Report Fiscal Year 1967, Research Analysis Corporation, Dec 1, 1967.

10. DATE OF REPORT: 9 October 1969

RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE — INSTALLATION

DOD (ARMY) — AGENCY OR DEPT.

359

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Col. James E. Hanson, MC
   A. TECHNICAL DIRECTOR: David E. Bass, Ph.D.

3. LOCATION: A. Natick (Nearest City) B. Norfolk (County) C. Mass. (State)

4. P. O. ADDRESS: Res. Inst. of Environmental Medicine
   A. Natick (City) B. Mass. (State) C. 01761 (Zip Code) D. Area Code 617 OL 31000, x 2811 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 88
   B. ALL OTHER PERSONNEL (Total): 114

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 3.119
   B. EXTRAMURAL (Total): $ .000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

To conduct basic and applied research to determine how heat, cold, high terrestrial elevation and work affect the soldier's life processes, performance and health, and to report and advise the Army and the scientific community.

Conduct research and provide guidance to designers, engineers, tacticians planners and physicians on military performance, casualty prevention and treatment in extreme climates and engineered environments, advise on matters pertaining to health and safety in maneuvers when participants undergo significant heat, cold or hypoxic stress.

06-06 Biol. & Med. Sciences - Environmental Biology

06-11 " " " " - Life Support

06-19 " " " " - Stress Physiology

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

In their human and animal research, they use 50 volunteer test subjects and extensive climatic chambers of NLABS plus many intrinsic smaller chambers, extensive animal care facilities, electron microscope, underwater research pool, copper manikins, and diverse equipment for biochemical, biophysical, medical, physiological, pharmacological, and psychological measurement.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

ROCK ISLAND ARSENAL LABORATORIES
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: CG/USAWECOM Maj Gen M.A.Rasmussen B. TECHNICAL DIRECTOR: Dr. C. M. Hudson

3. LOCATION: A. Rock Island (Nearest City) B. Rock Island (County) C. Illinois (State)

4. P. O. ADDRESS: Rock Island Arsenal Laboratories
A. Rock Island (City) B. Illinois (State) C. 61202 (Zip Code) D. 309 794-6001 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 218
B. ALL OTHER PERSONNEL (Total): 544

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 9.845 million
B. EXTRAMURAL (Total): $ 11.287 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Mission: Performs assigned missions in the research and development of new weapons and weapon system components in the areas of artillery, small arms, combat vehicles and aircraft weaponization. Specific items include gun mounts, loaders, recoil, elevation and traverse mechanisms, turrets, spotting weapons, machine guns, automatic cannon, clips and links, individual weapons and grenade launchers.

13-08	Mechanical, Industrial, Civil, and Marine Engineering - Industrial Processes
13-09	" " " " " " - Machinery & Tools
19-04	Ordnance - Explosions, Ballistics, and Armor
19-05	" - Fire Control and Bombing Systems
19-06	" - Guns

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL-1

8. MAJOR EQUIPMENT:

Range facilities for firing weapons up to 105 mm size using inert projectiles at 0° elevation; lubrication research facility; corrosion prevention research facility; elastomers research facility; rubber and plastics technology facility; fibrous materials research facility; metal finishing processes research facility; powder metallurgical research facility; hydrodynamics research facility; spring design and simulation facility; IBM 1620 digital computer; and weapons instrumentation facility.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: September 30, 1969

TANK AUTOMOTIVE COMMAND LABORATORIES
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: MG S. E. Lollis, CG
A. TECHNICAL DIRECTOR: Mr. E. Patrick, Ch Sci

3. LOCATION: A. Warren (Nearest City) B. Macomb (County) C. Michigan (State)

4. P. O. ADDRESS: Army Tank Automotive Command Laboratories
A. Warren (City) B. Mich. (State) C. 48090 (Zip Code) D. A.C. 313 756-1000 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 549
B. ALL OTHER PERSONNEL (Total): 600

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 44.323 million
B. EXTRAMURAL (Total): $ 55.644 "

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Responsible for research, concept, design, development, fabrication, advanced production engineering, support to production, for present and future vehicles systems and sub-systems of tank-automotive materiel and its related sciences.

Concept formulation
Vehicle subsystem integration
Analytical prediction of military vehicle performance
Vehicle motion simulator
River simulator facility and land locomotion sail bins
Development of nuclear radiation protection
Vehicle signature program
Vehicular noise reduction program.

08-04	Earth Sciences & Oceanography - Geochemistry
08-13	" " " " - Soil Mechanics
13-08	Mechanical, Industrial, Civil, & Marine Eng. - Industrial Processes
13-09	" " " " " " " - Machinery & Tools
19-03	Ordnance - Combat Vehicles
21-02	Propulsion & Fuels - Combustion and Ignition
21-07	" " " - Reciprocating Engines

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Particledynamics laboratory
Metal anal with micoprobe electron microscope analyzer and techniques
Development of improved armor welding and fabrication
Low temperature, shock and vibration test facilities
Soil laboratory

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

TROPIC TEST CENTER
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: John Zakel, Jr. Commanding A. TECHNICAL DIRECTOR: Frank S. Mendez, Tech Advisor

3. LOCATION: A. Panama City (Nearest City) B. - (County) C. Canal Zone (State)

4. P. O. ADDRESS: Army Tropic Test Center

A. Ft. Clayton (City) B. Canal Zone (State) C. (Zip Code) D. 85-5105 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 209
B. ALL OTHER PERSONNEL (Total): 118

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 4.537 million
B. EXTRAMURAL (Total): $ .072 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Plan and conduct environmental phases of engineering svc int eng/svc evaluation check and confirmatory tests. Support tropical environmental tests conducted by other agencies. Conduct rsch in tropic environs.

Evaluate and recommend as to test item suitability for prescribed use
Recommend to USATECOM Hdqs research projects in support of Army RDT&E
Plan and support RDT&E activities for DoD or other Govt agencies
Natural tropical terrain environment. Firing ranges. Natural terrain mobility courses.

14-02	Methods and Equipment	- Laboratories, test facilities & test equipment
14-04	" " "	- Reliability
19-01	Ordnance	- Ammunition, explosives and pyrotechnics
19-03	"	- Combat vehicles
19-04	"	- Explosions, ballistics, and armor
19-06	"	- Guns

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Ammo test storage and functioning areas. Chemical biological electronic and calibration laboratories. Jungle grass and coastal material exposure sites. Jungle radio ranging sites. Photographic support facility. Technical operations support facility. Pol tank farm.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

WALTER REED ARMY INSTITUTE OF RESEARCH
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Col. W. H. Meroney, MC
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Washington, D. C. (Nearest City) B. (County) C. (State)

4. P. O. ADDRESS: Walter Reed Army Medical Center
A. Washington, D. C. (City) B. (State) C. 20012 (Zip Code) D. 202-576-3551 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1968):
A. R&D PROFESSIONALS (Total): 339
B. ALL OTHER PERSONNEL (Total): 886

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 19.616 million
B. EXTRAMURAL (Total): $ .325 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Performs R&D and conducts graduate education in the field of medicine, veterinary medicine and allied medical science. Serve as consulting and diagnostic reference laboratory for Army. Provide adivisory service on problems of epidemiology in military medicine. Provide technical quality control of biological product development, produce and distribute biological products not available from commercial sources.

Research, teaching and reference laboratory services summarize major functions in the areas of --preventive medicine, infectious diseases, surgery, neuropsychiatric diseases, internal medicine, medical chemistry and basic medical sciences.

05-10	Behavioral & Social Sciences	- Physiological Psychology
06-01	Biol & Med Sciences	- Biochemistry
06-02	" " " "	- Bioengineering
06-05	" " " "	- Clinical medicine - epidemiology
06-06	" " " "	- Environmental biology
06-13	" " " "	- Microbiology
06-15	" " " "	- Pharmacology
06-16	" " " "	- Physiology
06-20	" " " "	- Toxicology

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Highly sophisticated medical equipment in all areas of investigation--electron microscopes, automated chemical analysis systems, chemical typewriters, behavioral research instrumentation. The WRAIR maintains laboratory and research facilities at Fort Meade, Md., Edgewood Arsenal, Md., 249th Hosp, Japan, SEATO Hq, Bangkok, Thailand and Vietnam. The WRAIR is capable of conducting research in a vast number of areas.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

WATERVLIET ARSENAL LABORATORIES
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Col. William Mulheron, Jr.
   A. TECHNICAL DIRECTOR: Dr. Robert E. Weigle

3. LOCATION: A. Watervliet (Nearest City) B. Albany (County) C. New York (State)

4. P. O. ADDRESS: Watervliet Arsenal
   A. Watervliet (City) B. New York (State) C. 12189 (Zip Code) D. 518--273-4610 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 185
   B. ALL OTHER PERSONNEL (Total): 292

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 10.413 million
   B. EXTRAMURAL (Total): $ .844 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Within Watervliet Arsenal, the RDT & E Program in the fields of Cannon and related componentry, and In-House Laboratory Initiated Research, is conducted by the Benet Research and Engineering Laboratories, supported in areas of protype manufacture and model shop facilities by the Operations Division, and in the field of Metrology by the Quality Assurance Office. The Benet Research and Engineering Laboratories, encompassing 165,000 square feet in 11 buildings, employs over 400 engineers, scientists, technicians and support personnel. Activities span the technical spectrum from basic research to ultimate equipment disposal. Functions are carried out by two primary laboratories (Research Laboratory and Development Engineering Laboratory), assisted by four separate offices providing support services. They are situated physically within the confines of Watervliet Arsenal, having readily available to them a manufacturing capability to construct all types of Cannon to as large a caliber as is envisaged within the current and immediate future technological time frame. Current MCA projects will add an additional 25,000 square feet of increased capacity for experimentation.

11-06	Materials - Metallurgy and Metallography
13-08	Mechanical, Industrial, Civil & Marine Eng - Industrial Processes
13-09	Mechanical, Industrial, Civil & Marine Eng - Machinery and Tools
19-06	Ordnance - Guns

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

8. MAJOR EQUIPMENT:

Unique facilities and capabilities include high pressure metallurgy with 20 - 30 K-bar-fluid extrusion press whisker growth and test neutron analysis isotope counting dynamic test of breech components and tube sections (full size) dimensional photoelasticity comp. Mat LS electrodeposition (vacuum coater and electron-beam vapor-deposition) enclosed proof range (20mm Max) electron microscopy (2.3 angstrom S resolution and 250000x mag) cryogenics (helium dewar app) to temps of 40 kelvin hi-performance shock test (1200 lbs to 1500 G S) for gun components hi--temp vacuum furnance (3000D C max) time of flight mass spectrometer 20000 gauss magnet for test of high and cryogenic temp specimens electroplating, anodizing and titanium hard coat processes electron microprobe analyzer (B-UR in PPP) IBM 360-44 computer.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available

10. DATE OF REPORT: 30 September 1969

WHITE SANDS MISSILE RANGE
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

371

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: M. G. Davisson, Maj Gen,USA A. TECHNICAL DIRECTOR: Dr. R. H. Duncan

3. LOCATION A. El Paso (Nearest City) B. Otero (County) C. New Mexico (State)

4. P. O. ADDRESS: White Sands Missile Range

A. White Sands (City) B. New Mexico (State) C. 88002 (Zip Code) D. A.C. 915 678-2222 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 1412
B. ALL OTHER PERSONNEL (Total): 3957

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 89.688 millions
B. EXTRAMURAL (Total): $ 20.085 millions

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Mission - Operate a national missile range for support of all approved missile and related test programs, independently test and evaluate Army missile and rocket systems, and engineer and develop range instrumentation systems for gathering test data.

Ground and flight safety, obtaining flight trajectory and event data, recovering missiles or portions thereof, reducing and putting into readable forms data collected by range instruments, engineering and development of range instrumentation, independently test and evaluate Army weapons systems. Evaluate guidance and control systems, structural integrity, propulsion systems, electromagnetic radiation effects, analysis of chemical and metallographic effects, microbiological effects, climatic environmental effects, test and evaluate warheads and special weapons, weapons simulation, nuclear effects testing, electronic and optical tracking sensors and data transmission required to provide test data on missiles and related programs.

14-02	Methods and Equipment	- Labs, Test Facilities & Test Equip.
14-03	" " "	- Recording Devices
14-04	" " "	- Reliability
16-01	Missile Technology	- Missile Launching and Ground Support
16-02	" "	- Missile Trajectories

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

All range equipment associated with the test and evaluation program plus environmental test and supporting shop equipment. Major off-range launch areas include the Green River Launch Complex (Green River, Blanding and Gibson Butte, Utah) and Fort Wingate, New Mexico. Approximately 1100 precisely surveyed sites for permanent and mobile instrumentation are located on Range with approximately 700 optical and electronic instruments available to support Range Users requirements. Both real-time and deferred data analysis and processing capabilities are provided by two 7044/7094 Direct-Coupled Systems. Support systems include: calibration, communications, frequency monitoring, geodetics, meteorology, recovery, surveillance radar, television, timing, target and air support and photo-optical processing. Laboratory testing technology includes reliability and statistics, weapon system simulation, detection, discrimination and tracking, instrumentation and flight test support, chemical-metallographic, microbiological, climatic, nuclear effects, and warhead and special weapons.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

White Sands has a number of off-base test sites such as Blanding, Gilan Butte, Green River, many telemetry sites, etc. However these are normally unmanned with the exception of Green River. Green River is mainly operated by a contractor (Dynelectron). There are approximately 110 contractor personnel and about 20 to 25 government personnel on the site.

10. DATE OF REPORT: 30 September 1969

YUMA PROVING GROUND
INSTALLATION

DOD (ARMY)
AGENCY OR DEPT.

373

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Col. Armistead E. Harper
   A. TECHNICAL DIRECTOR: Mr. Floyd Watts

3. LOCATION: A. Yuma (Nearest City) B. Yuma (County) C. Arizona (State)

4. P. O. ADDRESS: Yuma Proving Ground
   A. Yuma (City) B. Arizona (State) C. 85364 (Zip Code) D. 602-328-2163 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 81
   B. ALL OTHER PERSONNEL (Total): 1214

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 17.755 million
   B. EXTRAMURAL (Total): $ .000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Yuma Proving Ground (YPG) is a Test and Evaluation Command facility responsible for (1) planning, conducting and supporting desert environmental tests of Army materiel; (2) planning and conducting engineer design, production and post-production tests and supporting research and development activity; (3) providing technical resources and support for Arctic environmental tests, as directed.

The proving ground also has the mission of planning and conducting engineering tests of air-drop equipment and air delivery tests of other materiel.

The climate, geography and air space of YPG offer an excellent combination of factors for tests of a wide variety of materiel. There is emphasis on vehicular tests on paved, gravel and cross-country courses, on munitions and weapons testing on two artillery ranges, and an air delivery testing on three especially prepared drop zones plus the Colorado River.

14-02 Methods and Equip - Labs, Test Facilities and Test Equip., 04-Reliability.
19-01 Ordnance - Ammunition, Explosives, and Pyrotechnics, 02-Bombs, 03-Combat Vehicles, 04-Explosions, Ballistics, and Armor, 05-Fire Control and Bombing Systems, 06-Guns, 07-Rockets.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

The functional facilities of YPG include test and evaluation areas and equipment for proving munitions weapons, vehicles, techniques of air delivery, and various other types of Army materiel and procedures.

Facilities include nearly one million acres of varied desert terrain, favorable assigned airspace (unlimited over the 60000-meter artillery range) use of Colorado River for water testing.

Equipment avail. for test purposes includes electronic, photometric, phys. Meas and geodetic instr. associated with a general purpose proving ground. A small computer is installed for data reduction and analysis. Major equip. investments in field dynamometer, telemetry devices and cinetheodolites.

Approximately 1200 people, both mil. and civ. assd., including about 100 prof. engrs. and skilled tech.

9. COMMENT AND PUBLICATION REFERENCES:

Off-post test sites utilized by YPG include a sand dune area, ocean beaches and Death Valley in Calif., winter snow fields and terrain elevations to 10,000 ft. in northern Arizona, and the Joint DoD Parachute Test Facility at El Centro, California.

Air space over the air-drop zones and one of the artillery ranges (60,000 meters) is unlimited. The air space over the second artillery range (50,000 meters) is under YPG control to 24,000 feet.

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

AEROSPACE MEDICAL INSTITUTE
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

375

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Capt. M.D. Courtney, MC,USN, Com.Off.
A. TECHNICAL DIRECTOR: Ashton Graybiel M.D.

3. LOCATION: A. Pensacola (Nearest City) B. Escambia (County) C. Florida (State)

4. P. O. ADDRESS: Naval Aerospace Medical Inst., NAMC
A. Pensacola (City) B. Florida (State) C. 32512 (Zip Code) D. A.C. 904 452-4354 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 55
B. ALL OTHER PERSONNEL (Total): 109

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 3.163 M
B. EXTRAMURAL (Total): $ .172 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

NAMI research investigations are concerned with flight personnel and center around (1) their psychological aptitude and professional fitness for flying, (2) their physical (medical) fitness, and (3) their tolerance for flight stresses. Investigations in the last named area deal chiefly with (1) disorientation and other functional disturbances resulting from exposure to unusual force environments, (2) hazards due to ionizing radiation, (3) the effects of very strong magnetic environment, and (4) cardiovascular diseases and disorders. Basic research is conducted in vision, hearing, respiration, and neurological mechanisms involved in alertness and consciousness.

05-10 Behavioral and Social Sciences-Psychology (Individual and Group Behavior)
06-16 Biological and Medical Sciences-Physiology
06-19 " " " " -Stress Physiology

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

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8. MAJOR EQUIPMENT:

Slow Rotation Room, Human Disorientation Device, Coriolis Acceleration Platform, Stille-Werner Chair, optokinetic stimulator, electric posture table, ship's motion simulator, and facilities for animal experimentation. Other items consist of an electron microscope, ultracentrifuge, high density electromagnetic field assembly, magnetometer, infrared spectrophotometer, vectorcardiograph, ballistocardiograph, electrocardiograph, x-ray, and incidental equipment for use in otolaryngology, opthalmology, and other specialized clinical fields closely associated with the training and research programs. An AIE type aircraft is equipped for in-flight recording of electroencephalograms and electrocardiagrams. An animal facility housing monkeys, dogs, rats, mice and cats includes a fully equipped operating room and laboratory. Fully equipped laboratories and a UNIVAC 418 Computer with associated data analysis facilities are also available.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

AEROSPACE RECOVERY FACILITY
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Capt Claude W. Roesner, USNR
   A. TECHNICAL DIRECTOR: Howard C. Fish

3. LOCATION: A. El Centro (Nearest City) B. Imperial (County) C. Calif. (State)

4. P. O. ADDRESS: Naval Aerospace Recovery Facility
   A. El Centro (City) B. Calif. (State) C. 92244 (Zip Code) D. A.C. 714 353-2401 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 34
   B. ALL OTHER PERSONNEL (Total): 250

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 3.383 M
   B. EXTRAMURAL (Total): $ .235 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Develop, test, evaluate parachutes and related systems human escape methods and systems retardation and recovery systems, rescue survival and personal safety equipment systems for retardation and recovery of ordnance, aircraft, missile and capsule assemblies and logistic aerial delivery.

Lead laboratory RDT&E personnel recovery and retardation systems. Direct fleet support including in-service engineering regarding U. S. on assigned equipments. Provide technical assistance and land and water test range support to Naval Ordnance Lab, White Oak. Provide instrumented ranges and flight test support NAVAIR contractors. Provide photographic industrial shops, material lab. Support 6511th PED DoD Joint Parachute Test Facility Directive. On-site quality assurance. Support NASA Apollo and Parawing projects. Provide technical assistance to NMC in development and qualification of biomedical and physiological instrumentation. Support Naval Air Development Center in escape systems and search, rescue and survival equipment. Develop system integration and flight test. Develop, test and evaluate related parachute ground support equipment and installations. Effect parachute/component standardization of specs, dwngs and plgs. As DFA, direct and fund related DFA efforts as required.

06-07 Biological and Medical Sciences - Escape, Rescue and Survival
14-02 Methods and Equipment - Labs, Test Facilities and Test Equipment
14-04 " " " - Reliability
15-05 Military Sciences - Logistics

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

This facility consists of 24 buildings housing administrative offices, laboratory space, hangar space, and shop capabilities, not including barracks, and in addition has various space-positioning ranges, equipped with radars to vector aircraft, Rawin for accurate wind sounding, Askania and Contraves cinetheodolites, telemetry and communications systems and long range photographic camera mounts. The TATU space positioning range including several drop zones is used for tests requiring land impact, the Salton Sea Range is used for water impact conditions. This facility has the responsibility for testing deployable decelerators including parachutes, pilot escape parachute systems, aerial delivery systems, aircraft decelerating parachutes, guided missile parachute recovery, and aerodynamic retardation devices. In addition, parachutes used to delay impact of weapons are tested. This facility is supported by aircraft such as C-130, F-106, B-66, T-28, T-33, H-21, C-47J, A3B, TF9J, A4B, U-6, NUIB, F4A, and NTF95. Ground launched vehicles can be tested to 150,000' at velocities to Mach 5.0; air launched vehicles to 80,000' and Mach 3.0. Recovery equipment is available for handling loads up to 60,000 pounds.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

AIR DEVELOPMENT CENTER — INSTALLATION

DOD (NAVY) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Capt. F. W. Ewald
A. TECHNICAL DIRECTOR: Dr. H. Krutter

3. LOCATION: A. Johnsville, (Nearest City) B. Bucks (County) C. Penna. (State)

4. P. O. ADDRESS: Naval Air Development Center
A. Johnsville (City) B. Penna. (State) C. 18974 (Zip Code) D. A.C. 215 052-9000 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 1089
B. ALL OTHER PERSONNEL (Total): 1714

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 58.270 M
B. EXTRAMURAL (Total): $ 34.259 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The function of this center is to conduct research, design, development, test and evaluation of aeronautical systems and components and to perform research and development in aviation medicine. The center's eight technical departments include five at Johnsville and three at the Philadelphia Naval Base.

01-03 Aeronautics - Aircraft
01-04 " - Aircraft Flight Instrumentation
01-05 " - Air Facilities
05-08 Behavioral and Social Sciences - Man-Machine Relations
05-10 " " " " - Psychology (Individual and Group Behavior)
06-01 Biological and Medical Sciences - Biochemistry
06-11 " " " " - Life Support
06-19 " " " " - Stress Physiology
09-01 Electronics and Electrical Engrg. - Components
09-05 " " " " - Subsystems
11-04 Materials - Composite Materials
11-06 " - Metallurgy and Metallography
15-01 Military Sciences - Antisubmarine Warfare
17-01 Navigation, Comm, Detection & Countermeasures - Acoustic Detection
17-04 " " " " " - Electromag. & Acoustic Count./measures
20-01 Physics - Acoustics

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

380 8. MAJOR EQUIPMENT:

The Johnsville group includes the following facilities: Aero Electronics Technology complex, Aero Mechanics Development Facility, Aerospace Medical Research complex, Air Warfare Research Facility, and Weapon Systems Development and Management Facility. The Philadelphia group includes the following facilities: Aero Materials Facility, Aero Structures Test Facility and Aerospace Crew Equipment Facility. In addition, the Naval Air Facility at Johnsville maintains and operates the airfield, assigned aircraft, aeronautical equipment and support equipment in support of RDT&E operations at the Center. The Key West Engineering Station, located at the Naval Station Annex, Key West, Florida, provides sea testing capability for ASW detection programs.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

AIR ENGINEERING CENTER — **INSTALLATION**

DOD (NAVY) — **AGENCY OR DEPT.**

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Capt. C. T. Froscher, USN
A. TECHNICAL DIRECTOR: Mr. J. A. Dunford

3. LOCATION: A. Philadelphia *(Nearest City)* B. Philadelphia *(County)* C. Penna. *(State)*

4. P. O. ADDRESS: Naval Air Engineering Center
A. Philadelphia *(City)* B. Penna. *(State)* C. 19112 *(Zip Code)* D. A.C. 215 HO 5-1000 x 2501 *(Telephone (Area Code & No.)*

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 75
B. ALL OTHER PERSONNEL (Total): 214

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 6.2 M
B. EXTRAMURAL (Total): $ 3.7 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Naval Air Engineering Center conducts a program of research, development, test, evaluation, systems integration, limited production, and fleet engineering support in launching, recovery, and landing aids for aircraft and in ground support equipment for aircraft and airborne weapons systems. The mission performance relates to aircraft carriers, ship-based aircraft, air launched weapons, non-aviation vessels, and expeditionary fields. The program provides manufacturing support for research and development effort involving launching and recovery devices, ancillary aircraft equipment and ground support equipment for aircraft and missiles.

01-02 Aeronautics - Aerodynamics
01-04 " - Aircraft Flight Instrumentation
01-05 " - Air Facilities
13-07 Mechanical, Industrial, Civil and Marine Engineering - Hydraulic and Pneumatic Equipment

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Versatile machine shop, with conventional and automated numerically controlled machine tools, capable of prototype and limited production. IBM 360/50 computer for engineering analysis. Sites for full-scale performance and evaluation testing of aircraft launch and recovery equipment. Landing-mat test facility for full-scale simulation of runway loading during aircraft landing. Test facility for complete evaluation of wire rope. Component test laboratory for development testing of hydraulic, pneumatic and electrical equipment under conditions simulating fleet use.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

AIR PROPULSION TEST CENTER — INSTALLATION

DOD (NAVY) — AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Capt. R. V. Hayes, USN
   A. TECHNICAL DIRECTOR:

3. LOCATION: A. Trenton (Nearest City) B. Mercer (County) C. New Jersey (State)

4. P. O. ADDRESS: Naval Air Propulsion Test Center
   A. Trenton (City) B. N. Jersey (State) C. 08607 (Zip Code) D. Area Code 609 882-1414 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 160
   B. ALL OTHER PERSONNEL (Total): 586

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 11.585 M
   B. EXTRAMURAL (Total): $ 1.759 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Naval Air Propulsion Test Center is a combined command for two separate facilities. One facility, located in Trenton, New Jersey, is the Aeronautical Turbine Department. The other facility, a tenant activity of the Naval Base at Philadelphia, Pennsylvania, is the Aeronautical Engine Department. Together, these facilities provide a test and evaluation center for aircraft propulsion systems, their components and accessories plus fuels and lubricants. In addition, the facilities have a capability to perform applied research and development leading to correction of design deficiencies and service problems. Environmental conditions of flight and service are simulated in various size test cells, on accessory test benches and in component laboratories.

14-02 Methods and Equipment - Labs, Test Facilities, and Test Equipment
14-04 " " " - Reliability
21-01 Propulsion and Fuels - Air-Breathing Engines
21-02 " " " - Combustion and Ignition
21-05 " " " - Jet and Gas Turbine Engines

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

384 8. MAJOR EQUIPMENT:

Provide a test and evaluation center for aircraft propulsion systems. Environmental conditions of flight and service are simulated in various sizes of test cells, on accessory test benches and in component laboratories. Altitudes from sea level to 80,000 feet with thrust stands capable of measuring thrust to 50,000 pounds. This Department performs testing of the larger air-breathing gas turbines found in the Navy inventory. The aeronautical engine department is capable of simulating altitudes from sea level to 40,000 feet with a 4,000-pound thrust capacity. This department is able to test shaft-drive engines to 6,000 HP with subfacilities for test and evaluation of engine components, lubricants, fuels, auxiliary power systems and accessories. Each of these departments is equipped with the necessary shops and data acquisition and computation groups to fully support the test programs undertaken.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

AIR TEST CENTER
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: RADM Henry L. Miller
A. TECHNICAL DIRECTOR: Mr. John B. Paradis

3. LOCATION: A. Leonardtown (Nearest City) B. St. Mary's (County) C. Maryland (State)

4. P. O. ADDRESS: Naval Air Test Center
A. Patuxent River (City) B. Maryland (State) C. 20670 (Zip Code) D. A.C. 301 863-4254 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 622
B. ALL OTHER PERSONNEL (Total): 3744

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 59.831 M
B. EXTRAMURAL (Total): $ 6.616 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

NATC conducts the Board of Inspection and Survey Acceptance Trials of all Naval aircraft weapons systems and participates in the Navy Preliminary Evaluations, Contractor Demonstrations, and monitoring of the contract development of aircraft weapons systems, components, and related equipment. It recommends design changes for weapons systems and provides technical advice and assistance to the Naval Air Systems Command, Board of Inspection and Survey, and other military services and contractors. NATC establishes flight and release envelopes for conventional ordnance stores. It conducts research and development in Flight Testing methods, instrumentation and techniques and concepts of aircraft operation from carriers. NATC operates the U.S. Naval Test Pilot School. The mission is performed by three major Divisions, Weapons Systems Test, Flight Test and Service Test, and the U.S. Naval Test Pilot School which are supported by the Technical Support Division.

01-01 Aeronautics - Aerodynamics
01-04 " - Aircraft Flight Instrumentation
01-05 " - Air Facilities
14-02 Methods and Equipment - Labs, Test Facilities, and Test Equipment
14-04 " " " - Reliability
19-02 Ordnance - Bombs
19-05 " - Fire Control and Bombing Systems
19-07 " - Rockets

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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386 8. MAJOR EQUIPMENT:

The Naval Air Test Center, the test facility for the test and evaluation of Naval aircraft weapons systems and their components to determine their compliance with specifications and suitability for service use, consists of an all-weather air station with 3 heavy duty runways, 11,800, 9,700, and 6,400 ft. in length, 4 twin barrel aircraft hangars, 1 Interference Test Laboratory of hangar type construction, a Test Pilot School, aircraft catapults and arresting gear, a fully instrumented Radar/Phototheodolite tracking range and 3 seaplane basins with operating lanes in the Chesapeake Bay and the Patuxent River. The facility, located in Restricted Areas R-4005, R-4006 and R-4008, Area W-108 southeast of Cape Henlopen, Delaware, and a supersonic corridor extending 200 miles S.E. from NATC. Gunnery ranges, in R-4005, are within the coverage of the Radar/Phototheodolite Range.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

AIR TEST FACILITY — INSTALLATION

DOD (NAVY) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Capt. Donald L. Toohill

A. TECHNICAL DIRECTOR: Nicholas Ivanovic

3. LOCATION: A. Lakehurst *(Nearest City)* B. Ocean *(County)* C. New Jersey *(State)*

4. P. O. ADDRESS: Naval Air Test Facility

A. Lakehurst *(City)* B. New Jersey *(State)* C. 08733 *(Zip Code)* D. A.C. 201 323-2011 *(Telephone (Area Code & No.)*

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 96

B. ALL OTHER PERSONNEL (Total): 517

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 8.304 M

B. EXTRAMURAL (Total): $ .605 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The primary mission of this facility is "To conduct tests and evaluation of launching, recovery, and visual landing aids systems and related equipment; to provide test sites, facilities, and support services for developmental tests of ship installations equipment." This effort includes conduct of technical and functional evaluation programs, (1) to demonstrate specified performance and service suitability of ship installations equipment for service use; and (2) to determine operating limits, operating procedures, suitability to operate with existing service-type aircraft and missiles, reliability, maintainability, operational availability and general capabilities and limitations.

01-02	Aeronautics - Aeronautics
13-10	Mech, Indus, Civil & Marine Engrg. - Marine Engineering
14-02	Methods and Equipment - Labs, Test Facilities, and Test Equipment
14-04	" " " - Reliability
17-07	Navigation, Comm, Detection & Countermeasures - Navigation and Guidance

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

To carry out tasks related to its mission, this facility possesses 13 test site complexes where prototype models of launching, recovery, and visual landing aids equipment are installed and evaluated using both test vehicles and piloted Naval service aircraft. NATF(SI) possesses a number of shops that provide a broad spectrum of repair and maintenance services. In-house capability exists for fabrication of one-of-a-kind hardware and special test fixtures. NATF occupies a ground area of approximately 2500 acres.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

APPLIED PHYSICS LAB
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR: Applied Physics Laboratory, Johns Hopkins University

2. DIRECTOR: A Kossiakoff
A. Deputy DIRECTOR: F. P. McClure

3. LOCATION: A. Laurel (Nearest City) B. Howard (County) C. Maryland (State)

4. P. O. ADDRESS: 8621 Georgia Avenue
A. Silver Spring (City) B. Maryland (State) C. 20910 (Zip Code) D. Area Code 301 776-7100 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 1,088
B. ALL OTHER PERSONNEL (Total): 1,300

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 34,171,000 (in-house)
B. EXTRAMURAL (Total): $ 12,106,000 (Subcontracts

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

APL/JHU supports the Navy and other government agencies through research, development, engineering, test and evaluation in the areas of surface missile systems, space systems, astronautics, electronic warfare systems, ballistic missile systems, advanced propulsion systems and their subsidiary technologies, and ordnance devices.

04-01	Atmospheric Sciences - Atmospheric Physics
09-02	Electronics & Electrical Engrg. - Computers
09-06	" " " " - Telemetry
15-07	Military Sciences - Operations, Strategy, and Tactics
16-01	Missile Technology - Missile Launching and Ground Support
16-02	" " - Missile Trajectories
16-03	" " - Missile Warheads and Fuzes
16-04	" " - Missiles
17-07	Nav, Comm. Detection & Countermeasures-Navigation and Guidance
17-09	" " " " " -Radar Detection
22-02	Space Technology - Spacecraft

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES
Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Computers and general laboratory support equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

APPLIED PHYSICS LABORATORY — INSTALLATION

DOD (NAVY) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: ____

2. DIRECTOR: Dr. Ryland Hill
A. TECHNICAL DIRECTOR: Dr. Wayne Sandstrom

3. LOCATION: A. Seattle (Nearest City) B. King (County) C. Washington (State)

4. P. O. ADDRESS: 1013 N.E. 40th St.
A. Seattle (City) B. Wash. (State) C. 98105 (Zip Code) D. 206-543-1310 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 43
B. ALL OTHER PERSONNEL (Total): 80

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 2,054,000
B. EXTRAMURAL (Total): $ 117,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Development of information, techniques and hardware for undersea warfare against fast deep diving submarine targets and for use in development of offensive weaponry of submarines and surface ships in a countermeasure environment.

15-01	Military Sciences - Antisubmarine Warfare
15-06	" " - Nuclear Warfare
17-01	Navigation, Comm.Detection & Countermeasures - Acoustic Detection
18-03	Nuclear Science and Technology - Nuclear Explosions
19-01	Ordnance - Ammunition, Explosives, and Pyrotechnics
19-04	" - Explosions, Ballistics, and Armor
20-01	Physics - Acoustics

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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392 8. MAJOR EQUIPMENT:

No major or unique equipment. Total value of plant and equipment $2.6 million.

9. COMMENT AND PUBLICATION REFERENCES:

Additional information can be obtained by contacting the laboratory directly.

10. DATE OF REPORT:

APPLIED SCIENCE LABORATORY
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Capt. Terry T. McGillicuddy, USN A. TECHNICAL DIRECTOR: Mr. Edward J. Jehle

3. LOCATION: A. Brooklyn (Nearest City) B. Kings (County) C. New York (State)

4. P. O. ADDRESS: Naval Applied Science Laboratory

A. Brooklyn (City) B. New York (State) C. 11251 (Zip Code) D. A.C. 212 NA 5-4500 x 200 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 477
B. ALL OTHER PERSONNEL (Total): 600

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 15.496 M
B. EXTRAMURAL (Total): $ 7.550 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The official mission of the laboratory is: "To perform RDT&E in materials, electronics, navigation systems, chemical and biological warfare defense, and related fields of science and engineering." Within this mission, some of the major programs include the following: Polaris - Poseidon FBM; System Effectiveness; BW/CW Defense; Deep Submergence Systems; Advanced Interior Communications Systems; Structural Materials for Deep Submergence Vehicles; Thermal Radiation.

09-01 Electronics & Electrical Engineering - Components
09-03 " " " " - Electronic & Electrical Engrg.
09-05 " " " " - Subsystems
11-01 Materials - Adhesives and Seals
11-03 " - Coatings, Colorants, and Finishes
11-06 " - Metallurgy and Metallography
15-02 Military Sciences - Chemical, Biological, and Radiological Warfare
17-01 Navigation, Comm, Detection & Countermeasures - Acoustic Detection
17-02 " " " " " - Communications
17-07 " " " " " - Navigation and Guidance

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Barnes T4 Infrared Camera; IR Radiometric Microscope.
Reverberant Chamber; Anechoic Chamber (Large); Anechoic Chamber (Small);
Microphone Test Chamber; Three Freefield Meas Towers.
Univac 1218 Computer.
EM Shld Rm 20'Wx40'Lx15'H; EM shld Rm 15'Wx18'Lx9'H, Acousitcally Shielded Rm;
EMI MTR Empire NF 105; EMI Polarad CFI; Tape Rec Repro Sang 4780; Pow Dpect Dens Analyzer.
Xmitter Gates special; Spectrum Analyzer (80 db); Power Supply regulated.
Amplitron (622).
1000 K lb. Axial Machine; 100 K lb. Biaxial Machine.
600 K lb. Testing Machine; 20 K ft-lb Impact Machine.
Ajax Induction Furnace; CVC Vacuum Melting Furnace.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

Laboratory to be phased out by July 1, 1970 with the exception of the Polaris-Poseidon support.

10. DATE OF REPORT: 30 September 1969

ARCTIC RESEARCH LABORATORY
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
   - (1) ☐ GOVERNMENT-OPERATED
   - (2) ☐ FFRDC
   - (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
   - (1) ☐ GOVERNMENT-OPERATED
   - (2) ☒ CONTRACTOR-OPERATED

C. CONTRACTOR: University of Alaska

2. DIRECTOR: Dr. Max C. Brewer

A. TECHNICAL DIRECTOR: None

3. LOCATION: A. Barrow (Nearest City) B. (County) C. Alaska (State)

4. P. O. ADDRESS: Naval Arctic Research Laboratory

A. Barrow (City) B. Alaska (State) C. 99723 (Zip Code) D. - (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 30

B. ALL OTHER PERSONNEL (Total): 110

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 1,500,000

B. EXTRAMURAL (Total): $ 1,000,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Naval Arctic Research Laboratory is a Navy-owned contractor-operated (University of Alaska) research facility and shares in the basic mission of accomplishing those programs of basic and applied research which contribute to successful Navy operations in arctic regions. The Laboratory per se has the more specific mission of providing expert guidance and coordination of field and laboratory research tasks assigned by the Chief of Naval Research and to provide for such tasks all forms of logistics support necessary to their success.

05-09	Behavioral and Social Sciences - Personnel Selection, Training and Evaluation
06-19	Biological and Medical Sciences - Stress Physiology
15-05	Military Sciences - Logistics

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Routine laboratory equipment. No major or unique equipment.

9. COMMENT AND PUBLICATION REFERENCES:

10. DATE OF REPORT: 30 September 1969

ATLANTIC UNDERSEA TEST AND EVAL. CENTER
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Capt. W. P. Rothamel, USN A. TECHNICAL DIRECTOR: Mr. D. J. O'Meara

3. LOCATION: A. W. Palm Beach (Nearest City) B. Palm Beach (County) C. Florida (State)

4. P. O. ADDRESS: Atlantic Undersea Test and Eval. Center, P. O. Box 15257

A. W. Palm Beach (City) B. Florida (State) C. 33406 (Zip Code) D. A.C. 305 683-8002 x 95 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 37
B. ALL OTHER PERSONNEL (Total): 99

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 2.149 M
B. EXTRAMURAL (Total): $ 1.042 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Provide a deep-water test and evaluation facility, acoustic measurement, testing sonars; and provide accurate underwater, surface and air tracking data on ships and weapons in support of the U. S. Navy.

09-02	Electronics and Electrical Engineering - Computers
09-06	" " " " - Telemetry
14-02	Methods and Equipment - Labs, Test Facilities, and Test Equipment
14-04	" " " - Reliability
17-01	Navigation, Comm, Detection and Countermeasures - Acoustic Detection
19-08	Ordnance - Underwater Ordnance
20-01	Physics - Acoustics

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

398 8. MAJOR EQUIPMENT:

Weapon and weapon-system tracking; three-dimensional in-water and in-air tracking accomplished in weapons range in Tongue of the Ocean, Bahamas. Three in-water tracking systems, two tracking radars, five theodolites, command destruct, telemetry and TELELSEE systems located at five sites on Andros Island linked by microwave to Andros main-base computer, display and command-control systems, sensor calibration. Sonar range phase I in TOTO instrumented with active and passive targets and precision tracking system linked to computer and command-control systems at Andros main base provide data for calibration of sonar, fire control and gyro systems. Acoustic measurements, acoustic range-data acquisition and processing system installed in TOTO and at main base Andros in process of final checkout for acceptance.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

BLOOD RESEARCH LABORATORY
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Cdr. C. R. Valeri, MC, USNR
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Chelsea (Nearest City) B. Suffolk (County) C. Massachusetts (State)

4. P. O. ADDRESS: NAVAL BLOOD RESEARCH LAB., N. H.
A. Chelsea (City) B. Mass. (State) C. 02150 (Zip Code) D. A.C. 617 884-1735 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 7
B. ALL OTHER PERSONNEL (Total): 11

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 0.377 M
B. EXTRAMURAL (Total): $ .000 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

To conduct research on methods for the long-range preservation of blood and blood products and evaluation of its clinical usefulness in hospitals in operational areas.

06-01 Biological and Medical Sciences - Biochemistry
06-02 " " " " - Bioengineering

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Perform research on, and develop, test and evaluate methods for the preservation of blood and blood products. Equipment available for preservation of red blood cells, platelets, white cells and plasma fractions by both liquid and freeze preservation procedures. In addition, equipment is available to evaluate the viability and function of blood and blood products.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

CENTER FOR NAVAL ANALYSES
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: University of Rochester

2. DIRECTOR: Mr. Charles J. DiBona
A. TECHNICAL DIRECTOR: Mr. Charles J. DiBona

3. LOCATION: A. Washington, D. C. *(Nearest City)* B. Arlington *(County)* C. Virginia *(State)*

4. P. O. ADDRESS: 1401 Wilson Blvd.
A. Arlington *(City)* B. Virginia *(State)* C. 22209 *(Zip Code)* D. 703-524-9400 *(Telephone (Area Code & No.)*

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 211
B. ALL OTHER PERSONNEL (Total): 241

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 9,200,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts operations research, systems analysis, and economic and technical studies. (All groups--05-Behavioral and Social Sciences; 12-Mathematical Sciences; 15-Military Sciences; 16-Missile Technology; 17-Navigation, Communications, Detection and Countermeasures; 19-Ordnance; 20-Physics; 14-01-Methods and Equipment, Cost Effectiveness.)

Convoy Configuration & Protection (15-01 ASW-General, 15-05 Logistics-Transportation-Equipment & Supplies, 13-10 Ships-Merchant-Convoys)
Countering Antiship Missile (15-03 Antimissile-Defense-Requirements-Costs-Tactics)
Ocean Surveillance (15-04 Intelligence-Collection-Techniques-Handling Information)
Study of Land/Air Tradeoffs (15-07 Operations-Limited Wars-Strategy-Tactics)
Naval Readiness Analysis System (05-09 Personnel-Training-Readiness-Factors)
Development & Maintenance of Technical Skills (05-10 Psychology-Learning-Retention)
Aircraft Pipeline (01-05 Air Facilities-Maintenance-Management)
Navy's role in Exploitation of the Ocean (08 Ocean-Resources-Exploitation)
Marine Air/Ground Effectiveness Vietnam (13-06 Amphibious Vehicles-Performance, 19-06 Ground-Artillery-Effectiveness)
Future Strategic Systems (19-08 Underwater Ordnance-Strategic-Systems-Requirements)
Electronic Warfare Technology, Comparison and Assessment (17-04 Electronic Countermeasures-Technology-Threat Assessment)
Competing Demands for Air Space (01-02 Aircraft Operations-Flight Safety-Air Traffic).

A. ADDITIONAL COSATI CODES:
01-01 Aerodynamics-Operational-Flight-Characteristics-Problems

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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402 8. MAJOR EQUIPMENT: CDC 3400 Computer (Leased)

9. COMMENT AND PUBLICATION REFERENCES:

Responds to requirements from the Chief of Naval Operations, the Commandant of the Marine Corps, certain fleet and force commanders, and other government agencies.

As a result of many years' experience in dealing with complex operationl, technological, and planning problems, CNA has developed a broad analytical base that is applicable to many domestic problems. This is especially true where the complex and dynamic nature of problems require an emphasis on empirical research.

Some publications available through CFSTI; others through CNO (Op-96 or Op-03)
Ref. 1. Index of CNA Publications (Secret)
2. The Development of the Center for Naval Analyses (Unclassified)

10. DATE OF REPORT: 30 September 1969

CIVIL ENGINEERING LABORATORY
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

403

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Allen F. Dill, CDR CEC USNR
A. TECHNICAL DIRECTOR: William F. Burkart

3. LOCATION: A. Port Hueneme (Nearest City) B. Ventura (County) C. Calif. (State)

4. P. O. ADDRESS: NAVAL CIVIL ENGINEERING LABORATORY
A. Port Hueneme (City) B. Calif. (State) C. 93041 (Zip Code) D. A.C. 805 982-4528 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 164
B. ALL OTHER PERSONNEL (Total): 190

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 6.214 M
B. EXTRAMURAL (Total): $ 1.810 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

To conduct research and to develop, test and evaluate techniques, equipment, materials and structures for shore facilities, deep ocean facilities, advanced bases and amphibious operations. Construction, operation and maintenance capabilities are extended to meet new requirements and to improve the effectiveness of all facilities-type support. The program encompasses the broad fields of civil, mechanical, electrical, chemical and nuclear engineering; chemistry, physics, metallurgy, mathematics and electronics.

08-12 Earth Sciences and Oceanography - Snow, Ice, and Permafrost
08-13 " " " " - Soil Mechanics
13-02 Mechanical, Industrial, Civil and Marine Engrg - Civil Engineering
13-03 " " " " " " - Constr Equip,Mats & Supplies
13-13 " " " " " " - Structural Engineering

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Major facilities include deep-ocean simulation facility with a 72-inch-inside-diameter 10-foot-deep pressure vessel sustaining pressures up to 5500 psi; shops--carpenter, paint, model, welding; instrumentation facility; diver locker for equipment and supplies for 10 divers; shallow-water test range; material science solid state, metallurgical, photoelastic, and snow and ice labs; simulated blast facility; photographic facility; analog-to-digital converter; fadioisotope testing facility; Lorac B positioning system.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

CLOTHING AND TEXTILE RESEARCH UNIT
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

405

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: LCDR J. J. Gordon, SC, USN
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Natick (Nearest City) B. Middlesex (County) C. Massachusetts (State)

4. P. O. ADDRESS: Navy Clothing and Textile Research Unit
A. Natick (City) B. Mass. (State) C. 91760 (Zip Code) D. A.C. 617 653-1000 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 24
B. ALL OTHER PERSONNEL (Total): 44

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1.218 M
B. EXTRAMURAL (Total): $ .015 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conduct research, development, test and evaluation and give engineering support in clothing, textiles and related fields associated with service clothing and environmental and special protective clothing.

Conduct RDT&E in textile materials, leather, plastics and rubber. Develop Navy clothing, accessories and related items. Conduct studies in environmental sciences and life-support systems. Prepare specifications for clothing, textiles, footwear and related items. Coordinate standardization in clothing areas. Provide technical support to all DoD agencies in Navy clothing areas.

06-11 Biological and Medical Sciences - Life Support

11-05 Materials - Fibers and Textiles
11-07 " - Miscellaneous Materials
11-09 " - Plastics
11-10 " - Rubbers

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

406 8. MAJOR EQUIPMENT:

Textile laboratories, cold test chambers, hydro environment simulator, and high intensity thermal test unit.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

DENTAL RESEARCH INSTITUTE
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

407

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Kirk C. Hoerman, Capt, DC USN
A. TECHNICAL DIRECTOR: Irving L. Shklair

3. LOCATION: A. Great Lakes (Nearest City) B. Lake (County) C. Illinois (State)

4. P. O. ADDRESS: Naval Dental Research Inst. NTC
A. Great Lakes (City) B. Illinois (State) C. 60088 (Zip Code) D. A.C. 312 688-5424 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 13
B. ALL OTHER PERSONNEL (Total): 15

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 0.392 M
B. EXTRAMURAL (Total): $ .000 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

To conduct RDT&E in dental and allied sciences, emphasizing problems of dental and oral health in Naval and Marine Corps population and problems of fleet and field dentistry.

06-05 Biological and Medical Sciences - Clinical Medicine

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

408 8. MAJOR EQUIPMENT:

Automatic amino-acid analyzer, fully compensated spectrophotofluorometer, 4000-memory-core computer, programmed climate room, field dental surgical van with undercarriage, electron microscopy and stereoscanning bacterial taxonomy, small-molecule characterization, vaccine production and testing.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

ELECTRONICS LABORATORY CENTER
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Capt. M. D. Van Orden
A. TECHNICAL DIRECTOR: Dr. C. E. Bergman

3. LOCATION: A. San Diego (Nearest City) B. San Diego (County) C. California (State)

4. P. O. ADDRESS: Naval Electronics Laboratory Center
A. San Diego (City) B. Calif. (State) C. 92152 (Zip Code) D. A.C. 714 AC 2-6311 X 700 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 606
B. ALL OTHER PERSONNEL (Total): 800

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 33.689 M
B. EXTRAMURAL (Total): $ 3.220 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Naval Electronics Laboratory Center for Command Control and Communications conducts research, development, and tests in the field of electronics and related fields of engineering and science, including radio, radar, sonar, oceanography, and the instrumentation for and analysis of environmental weapons effect and human factors; and provides consultative services and sea test facilities as authorized for the Fleet, Navy contractors, and other agencies of the Department of Defense.

05-05	Behavioral and Social Sciences - Human Factors Engineering
09-01	Electronics and Electrical Engineering - Components
09-03	" " " " - Electronic & Electrical Engrg.
09-05	" " " " - Subsystems
10-02	Energy Conversion (Non-Propulsive) - Power Sources
10-03	" " " " - Energy Storage
17-01	Nav, Comm, Detection & Countermeasures - Acoustic Detection
17-02	" " " " " - Communications
17-02.1	" " " " " - Radio Communications

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES
Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

410 8. MAJOR EQUIPMENT:

Advanced computer science center, microelectronics lab, environmental test facility, laser research lab, 60-foot-diameter radio telescope, antenna model ranges, human factors lab, systems evaluation facilities, ex USS BUNKER HILL systems test bed.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

ELECTRONIC SYST. TEST & EVALUATION FACILITY — INSTALLATION
DOD (NAVY) — AGENCY OR DEPT.

411

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Cdr. R. N. Winkel
A. TECHNICAL DIRECTOR: R.E.Waxman

3. LOCATION: A. Patuxent River (Nearest City) B. St. Mary's (County) C. Maryland (State)

4. P. O. ADDRESS: Navy Electronic Syst. Test & Evaluation Facility
A. Patuxent River, (City) B. Md. (State) C. 20670 (Zip Code) D. A.C. 301 863-3512 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 54
B. ALL OTHER PERSONNEL (Total): 101

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 2.573 M
B. EXTRAMURAL (Total): $ .055 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

To provide technical support and service on electronic systems and equipment.

Test and evaluate electronic systems and equipment. Design, develop, procure, test and evaluate developmental prototypes, modifications, etc. Develop equipment and procurement specifications. Administer and monitor production procurement. Conduct instrumented surveys spectrum signatures radio frequency interference measurements in electromagnetic compatibility program.

09-03	Electronics and Electrical Engineering - Electronic & Electrical Engineering
14-02	Methods and Equipment - Labs, Test Facilities and Test Equipment
14-04	" " " - Reliability
17-02	Navigation, Comm., Detection & Countermeasures - Communications
17-07	" " " " " - Navigation and Guidance
17-09	" " " " " - Radar Detection

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

412 8. MAJOR EQUIPMENT:

No major equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

EXPLOSIVE ORDNANCE DISPOSAL FACILITY
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Bobby J. Brown, Cdr., USN
A. TECHNICAL DIRECTOR: M. Cashman LCDR. USN

3. LOCATION: A. Indian Head (Nearest City) B. Charles (County) C. Maryland (State)

4. P. O. ADDRESS: Naval Expl. Ord. Disposal Facility
A. Indian Head (City) B. Maryland (State) C. 20640 (Zip Code) D. A.C. 301 743-5511 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 26
B. ALL OTHER PERSONNEL (Total): 122

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1.255 M
B. EXTRAMURAL (Total): $ 1.641 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conduct RDT&E in technical matters concerning explosive ordnance disposal, and render-safe procedures for conventional and special weapons, guided missiles, biological and chemical munitions, tools and equipment and techniques, U.S. and foreign, as required to discharge Navy responsibilities to DoD, U.S. Army and Air Force, in matters of explosive ordnance disposal. Develop explosive ordnance disposal procedures, publication for joint service; develop equipment required to perform EOD procedures; technically manage availability of required EOD equipment.

19-01 Ordnance - Ammunition, Explosives, and Pyrotechnics
19-02 " - Bombs
19-04 " - Explosions, Ballistics, and Armor
19-08 " - Underwater Ordnance

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Major equipment and facility capabilities--Library for ordnance data, ordnance stowage, disassembly and analysis, ordnance surface and underwater tests.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

MEDICAL FIELD RESEARCH LABORATORY
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

415

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Jesse F. Adams, Capt, MC, USN
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Jacksonville (Nearest City) B. Onslow (County) C. N. Carolina (State)

4. P. O. ADDRESS: Naval Medical Field Research Lab.
A. Camp LeJeune (City) B. N. Carolina (State) C. 28542 (Zip Code) D. A.C. 919 346-2111 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 15
B. ALL OTHER PERSONNEL (Total): 69

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 0.951 M
B. EXTRAMURAL (Total): $ .000 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conduct research, development and testing in the medical, dental and allied sciences, with particular emphasis on problems of field and amphibious medicine.

Conduct research in problems of field and amphibious medicine. Develop, test and evaluate medical equipment and supplies and clothing and equipment for USMC personnel's use and protection. Primary capabilities in applied research, specifically in areas of bacteriology, physiology, stress physiology, entomology, environmental biology, virology, field medical equipment, biochemistry and animal investigations.

06-01 Biological and Medical Sciences - Biochemistry
06-06 " " " " - Environmental Biology
06-12 " " " " - Medical and Hospital Equipment and Supplies
06-16 " " " " - Physiology
06-17 " " " " - Protective Equipment
06-19 " " " " - Stress Physiology

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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416 8. MAJOR EQUIPMENT:

Olfactometer, blast facility, ballistic range, high-speed Bechman camera, frequency counters, materials laminating press and sealsers, sewing equipment, shop machinery, 2-man respiratory disease environmental chamber, climatic chamber, small low-pressure and low-temperature chamber, auto analyzer, oxygen analyzer, multiplex physiologic data recorder, electronic programmer, fluorometers, respirometer, gas partitioner, pyrheliograph, unrestricted photographic capability.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

MEDICAL NEUROPSYCHIATRIC RESEARCH UNIT
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

417

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Capt. Ransom J. Arthur, MC, USN A. TECHNICAL DIRECTOR: Dr. Walter Wilkins

3. LOCATION: A. San Diego (Nearest City) B. San Diego (County) C. Calif. (State)

4. P. O. ADDRESS: Navy Medical Neuropsychiatric Research Unit

A. San Diego (City) B. Calif. (State) C. 92152 (Zip Code) D. A.C. 714 225-6011 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 42
B. ALL OTHER PERSONNEL (Total): 19

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 0.839 M
B. EXTRAMURAL (Total): $ .020 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

This laboratory performs neuropsychiatric research, including neurology, psychiatry, and clinical psychology aimed at maximizing effectiveness of naval personnel. It investigates medical problems which contribute to ineffectiveness of Navy and Marine Corps personnel, including unusual environmental conditions, such as the Anarctic. Within this activity is a psychophysiology laboratory, and equipment for psychophysiological monitoring of stress effects, sleep loss, vigilance states, cortical and autonomic functioning. A data processing capability, but without computer is also available.

06-05 Biological and Medical Sciences - Clinical Medicine
06-19 " " " " - Stress Physiology

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES
Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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418 8. MAJOR EQUIPMENT:

Major investment items include complete EEG lab, combined use, for single seizure study and sleep deprivation, analyses of several underwater psychophysiological programs and tasks; further investment items combine recording capabilities to support the above lab and to provide written or voice records for future studies and comparisons.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

MEDICAL RESEARCH INSTITUTE — INSTALLATION

DOD (NAVY) — AGENCY OR DEPT.

419

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: H. C. Sudduth — A. TECHNICAL DIRECTOR:

3. LOCATION: A. Bethesda (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: Naval Medical Research Institute, NNMC

A. Bethesda (City) B. Md. (State) C. 20014 (Zip Code) D. A.C. 301 295-1000 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 190
B. ALL OTHER PERSONNEL (Total): 256

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 6.417 M
B. EXTRAMURAL (Total): $ .000 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

This facility is a Component Command of the National Naval Medical Center consisting of seven major departments: Behavioral Sciences, Clinical Investigation, Microbiology, Parasitology, Physiological Sciences, Dental and Bioenergetics Laboratory. These departments support many programs in basic and applied research and advanced development. The areas of study are directly related to military requirements and military needs.

05-10	Behavioral and Social Sciences - Psychology (Individual and Group Behavior)
06-01	Biological and Medical Sciences - Biochemistry
06-02	" " " " - Bioengineering
06-03	" " " " - Biology
06-04	" " " " - Bionics
06-05	" " " " - Clinical Medicine

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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420 8. MAJOR EQUIPMENT:

Important facilities include: pressure chambers for aviation and diving physiology; climatic chambers; deep isolation chambers; vibration apparatus; freeze drying and storage of bone, skin, dura and fascia; experimental animal management and support facilities; and facilities for the study of human and molecular energetics. The physical plant of NMRI includes approximately 160,000 sq ft of floor space in a complex of 13 buildings occupied exclusively by NMRI, plus an additional 17,500 sq ft dispersed in four other buildings shared with other Component Commands of NNMC. A total of 177,500 sq. ft.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

MEDICAL RESEARCH UNIT NO. 1
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

421

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: James W. Fresh
A. TECHNICAL DIRECTOR: Neylan A. Vedros

3. LOCATION: A. Berkeley (Nearest City) B. Alameda (County) C. California (State)

4. P. O. ADDRESS: Naval Medical Research Unit No. 1
A. Berkeley (City) B. Calif. (State) C. 94720 (Zip Code) D. A.C. 415 832-3050 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 8
B. ALL OTHER PERSONNEL (Total): 13

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 0.217 M
B. EXTRAMURAL (Total): $ .000 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Continued research on airborne infectious diseases; direct support of low-temperature Navy projects; development of aerosol hazard control in dental clinics; direct support of Navy submersible interests. Bacteriology, micology, biophysics and other appropriate fields relating particularly to the problems of airborne diseases affecting military populations. Study of protein electrolyte, liver, cardiopulmonary and other factors in host response to infections. Immunologic and physiologic studies on Neisseria meningitidis. Testing and improvement of Armed Forces' plague vaccine reference standards; studies on pathology and immunity of diseases of military importance; development of rapid diagnosis procedures for arbor and respiratory viruses; direct support as required in problems of military preventive medicine; training of medical department personnel in special problem areas; consultation and services in military problems of air hygiene.

06-01 Biological and Medical Sciences - Biochemistry

06-05 " " " " - Clinical Medicine

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

422 8. MAJOR EQUIPMENT:

No major equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

MEDICAL RESEARCH UNIT NO. 2
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

423

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: R. H. Watten, Capt. MC, USN A. TECHNICAL DIRECTOR: R. Q. Blackwell, Ch Sci

3. LOCATION: A. Taipei (Nearest City) B. -- (County) C. Taiwan (State)

4. P. O. ADDRESS: Naval Medical Research Unit No. 2
APO SF 96263
A. Box 14, Taipei (City) B. Taiwan (State) C. (Zip Code) D. (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 19
B. ALL OTHER PERSONNEL (Total): 32

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1.869 M
B. EXTRAMURAL (Total): $ .000 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conduct basic research in biomedical sciences; provide essential information on diseases and medical problems of military significance; recommend control measures; and provide training in research techniques.

06-01 Biological and Medical Sciences - Biochemistry
06-05 " " " " - Military Medicine
06-16 " " " " - Physiology

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

424 8. MAJOR EQUIPMENT:

Studies for diagnosis and treatment of tropical disease, epidemiological studies of infectious diseases. Facility consists of clinical investigation lab, microbiology lab, medical physics lab, medical ecology lab, biochemistry lab, and pathology lab. Animal facility physics lab has complete radioisotope equipment and capability.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

MEDICAL RESEARCH UNIT NO. 3
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

425

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Capt Donald Kent, MC, USN, CO
A. TECHNICAL DIRECTOR: Dr. Jack Schmidt, Tech Dir
Dr. Harry Hoogstrall, Sr. Sci

3. LOCATION: A. Cairo (Nearest City) B. - - (County) C. Egypt (State)

4. P. O. ADDRESS: Naval Medical Research Unit No. 3
A. Cairo (City) B. Egypt (State) C. FPO N. Y. 09527 (Zip Code) D. (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 27
B. ALL OTHER PERSONNEL (Total): 128

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1.403 M
B. EXTRAMURAL (Total): $ .000 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research into the etiology, ecology, distribution, transmission, pathogenesis, prevention, control and treatment of infectious and other endemic disease of military medical interest which are endemic or epidemic in the Middle East and Africa.

06-01 Biological and Medical Sciences - Biochemistry
06-05 " " " " - Clinical Medicine
06-16 " " " " - Physiology

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Arbovirus laboratory, experimental laboratory, animal production facilities, nutrition biochemistry laboratory, tick biochemistry and physiology laboratory, medical zoology and entomology laboratories, clinical investigation unit and medical wards, rickettsiology laboratory, tissue culture facilities, meningococcus and enteric bacilli laboratory, department of experimental veterinary pathology, parasitology laboratory and field survey units, experimental and anatomic pathology departments.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

MEDICAL RESEARCH UNIT NO. 4
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Capt Robert O. Peckinpaugh, MC, USN
TECHNICAL DIRECTOR:

3. LOCATION: A. Great Lakes (Nearest City) B. Lake (County) C. Illinois (State)

4. P. O. ADDRESS: Naval Medical Research Unit No. 4
A. Great Lakes (City) B. Ill. (State) C. 60088 (Zip Code) D. A.C. 312 688-5423 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 25
B. ALL OTHER PERSONNEL (Total): 54

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1.046 M
B. EXTRAMURAL (Total): $ .000 M

7. MAJOR FUNCTIONS AND ACTIVITIES (include COSATI Codes):

The research program of this activity is directed to the development and evaluation of control measures for acute respiratory diseases occurring among Naval personnel. The research effort involves measures of both biological and environmental significance. The location and arrangement of the facilities of this activity make possible an adaptable and comprehensive examination of a Naval recruit population and a Naval service school population for the investigation of communicable diseases. Evaluation and modernization of the curriculum of the adjacent Naval Hospital Corps School is performed by the nursing research facility of this activity. Evaluation of antimicrobial agents and vaccines in the control of acute respiratory disease are performed.

06-01 Biological and Medical Sciences - Biochemistry
06-03 " " " " - Biology
06-11 " " " " - Life Support
06-16 " " " " - Physiology

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Equipment includes sophisticated incubators and refrigeration units cameras, including micro film cameras, ultracentrifuges liquid scintillation system with teletype, sonic oscillator, spectrophotometers, automatic diluter, autotitrator, fluorometer and other items used in medical research functions' research into eitology, mode of transmission, control and treatment of communicable respiratory disease, help medical activities identify epidemic respiratory diseases study medical problems of recruit, train personnel in research techniques, and others as directed. Capabilities' research in ecology and control of communicable diseases at Navy training centers by use of current data in the fields of mycoplasma bacteriology, biochemistry, biometric, epidemiology, immunology, and virology.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

MISSILE CENTER
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

429

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Capt Lewis A. Hopkins, CO
A. TECHNICAL DIRECTOR: Donald F. Sullivan

3. LOCATION: A. Ventura (Nearest City) B. Ventura (County) C. Calif. (State)

4. P. O. ADDRESS: Naval Missile Center, Naval Air Systems Command
A. Point Mugu (City) B. Calif. (State) C. 93041 (Zip Code) D. A.C. 805 932-7095 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 528
B. ALL OTHER PERSONNEL (Total): 1773

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 38.892 M
B. EXTRAMURAL (Total): $ 13.728 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Center conducts test and evaluation of naval weapons, weapon systems and/or their associated subsystems, equipment and components,

Exercises engineering cognizance of assigned in-service air-launched weapons, weapon systems and/or associated subsystems, equipment and components,

Supports and participates in research and development in the fields of bioscience, electronic warfare and weapon evaluation systems,

Develops, tests, and operates air and surface targets, target systems and/or associated subsystems, equipment and components,

Provides services and support to the Pacific Missile Range and other activities.

14-02	Methods and Equipment - Labs, Test Facilities, and Test Equipment
14-04	" " " - Reliability
15-03	Military Sciences - Defense
16-01	Missile Technology - Missile Launching and Ground Support
16-04.1	" " - Air- and Space-Launched Missiles
19-07	Ordnance - Rockets

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

430 8. MAJOR EQUIPMENT:

The Center consists of four major facilities: Test Operations Facility, Laboratory Facility, Target Facility, and Photo/Graphic Facility. These facilities including the support facilities noted above occupy 912,000 square feet of structural space in 81 buildings. Other facilities include radar reflectivity anechoic chambers, rocket engine test and aircraft configured to accept electronic warfare equipment and instrumentation for flight testing on a quick charge basis, and special mobile radar vans both for field measurement and to provide training environments are unusual capabilities.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

The Center was initially commissioned 1 October 1946. It was one of the first Navy activities established to test guided missiles over land and water. Many of the sophisticated techniques pioneered by the Test Center have now evolved into a complex interaction of scientific efforts involving many combinations of controlled laboratory and flight test environments. The present Missile Center was established on 6 January 1959 under management control of the Bureau of Aeronautics and is now an activity of the Naval Air Systems Command. The Naval Missile Center is under the military command of the Commander, Pacific Missile Range, Point Mugu, California and under the management control of the Naval Air Systems Command.

10. DATE OF REPORT: 30 September 1969

NAVAL UNIT, FORT DETRICK
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

431

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Capt. Herbert G. Arm, MSC, USN A. TECHNICAL DIRECTOR:

3. LOCATION: A. Frederick (Nearest City) B. Frederick (County) C. Maryland (State)

4. P. O. ADDRESS: Naval Unit, Fort Detrick

A. Frederick (City) B. Maryland (State) C. 21701 (Zip Code) D. A.C. 301 393-1839 x 4239 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 1

B. ALL OTHER PERSONNEL (Total): 12

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 0.224 M

B. EXTRAMURAL (Total): $ .000 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

To promote modern medical scientific research jointly with the Department of the Army. Develop materials and methods compatible with Navy requirements for the prevention and control of diseases of natural and unnatural origin.

06-05 Biological and Medical Sciences - Clinical Medicine
06-11 " " " " - Life Support

15-02 Military Sciences - Chemical, Biological, & Radiological Warfare

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Major laboratory equipment and facilities for safe handling of pathogenic microorganisms made available by the Army. Decontaminating gas disseminators with ancillary equipment for Naval requirements. Capability in the fields of biological decontamination, viral and bacterial serology, vital and tissue culture technics, and aerobiology.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

ORDNANCE LABORATORY
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

433

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Capt. George G. Ball
A. TECHNICAL DIRECTOR: Dr. Gregory K. Hartmann

3. LOCATION: A. Silver Spring (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: Naval Ordnance Laboratory
A. White Oak (City) B. Maryland (State) C. 20910 (Zip Code) D. 301-434-7100 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 1134
B. ALL OTHER PERSONNEL (Total): 1840

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 51.250 M
B. EXTRAMURAL (Total): $ 20.807 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conduct exploratory, advanced, engineering and operational systems development, test and technical evaluation of ordnance systems, components and materials pertaining to existing, advanced and proposed weapons, principally in areas of strategic, surface and undersea warfare. Conduct research in sciences related to ordnance. Conduct independent and applied research in aeroballistics and hydroballistics, explosives, materials and other fields of physics, chemistry and mathematics. Conduct program of applied research, exploratory, advanced, engineering and operational systems development, and technical evaluation of ordnance systems, components and materials, principally in the fields of missiles, nuclear weapons, mines, torpedoes, fuzes, fire control, guidance and small craft armament. Perform product engineering on, and prepare design disclosures for, items of ordnance designed and developed at NOL.

07-02	Chemistry - Inorganic Chemistry
07-03	" - Organic Chemistry
07-04	" - Physical Chemistry
12-01	Mathematical Sciences - Mathematics and Statistics
15-01	Military Science - Antisubmarine Warfare
15-03	" " - Defense
16-02	Missile Technology - Missile Trajectories
16-03	Missile Technology - Missile Warheads and Fuzes
16-04	" " - Missiles
17-06	Navigation, Comm., Detection & Countermeasures-Magnetic Detection
19-01	Ordnance - Ammunition, Explosives, and Pyrotechnics
19-04	" - Explosions, Ballistics, and Armor
19-05	" - Fire Control and Bombing Systems
19-08	" - Underwater Ordnance
20-01	Physics - Acoustics
20-03	" - Electricity and Magnetism

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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8. MAJOR EQUIPMENT:

Wind tunnels to Mach 20, ball ranges for free-flight model studies, hydro tank 1.75M gallons' capacity for study relating to large models at high-speed entry. Centrifuge to study underwater explosions, facility for research in chemistry of explosives and propellants, extensive lab and field facilities for testing ordnance under natural and/or simulated conditions, magnetic structural facility to study magnetic characteristics of submarines, ships and satellites.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

ORDNANCE MISSILE TEST FACILITY — INSTALLATION
DOD (NAVY) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: G. D. Howard, Capt, USN, CO
A. TECHNICAL DIRECTOR: Dr. W. W. Bohn. Ch Engr

3. LOCATION: A. White Sands (Nearest City) B. Otero (County) C. New Mexico (State)

4. P. O. ADDRESS: Naval Ordnance Missile Test Facility
A. White Sands (City) B. N. Mexico (State) C. 88002 (Zip Code) D. A.C. 915 678-2121 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 52
B. ALL OTHER PERSONNEL (Total): 232

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 2.704 M
B. EXTRAMURAL (Total): $ .682 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Support the Navy guided missile and rocket programs including ground and flight testing,participate in the operation of the Department of Defense integrated missile test range at White Sands.

09-06	Electronics & Electrical Engineering - Telemetry
14-02	Methods and Equipment - Labs, Test Facilities, and Test Equipment
14-04	" " " - Reliability
16-01	Missile Technology - Missile Launching and Ground Support
16-02	" " - Missile Trajectories
19-05	Ordnance - Fire Control and Bombing Systems

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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436 **8. MAJOR EQUIPMENT:**

The Naval Ordnance Missile Test Facility is a tenant activity located on White Sands Missile Range, New Mexico. It is composed of a headquarters and laboratory building, missile inspection, checkout and assembly facilities, missile launching and fire control systems, research rocket assembly buildings and launch tower facilities, and attendant support structures consistent with the mission of the facility. The facility is capable of supporting the checkout and flight testing in conjunction with the National Range of Naval surface-to-air, surface-to-surface and air-to-surface missiles, particularly Tartar, Terrier, Talos, Standard, AGM78A, Hart, and other Naval air weapons. The facility has the technical capability of providing checkout and installation of ECM equipment in drones and radiation-type ground targets used in flight testing of missiles. The facility provides technical skill and equipment for support of the upper atmospheric research rocket programs of the Naval Research Laboratory, NASA, Air Force, and Kitt Peak National Observatory. Associated with the supporting facilities is a Navy Metalcraft Shop which is well equipped both with skilled labor and machines.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

ORDNANCE RESEARCH LABORATORY — INSTALLATION

DOD (NAVY) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: Ordnance Research Laboratory, Pennsylvania State University

2. DIRECTOR: John G. Johnson

A. ~~XXXXXXX~~ Associate DIRECTOR: Frank Finlan

3. LOCATION: A. State College (Nearest City) B. Centre (County) C. Pennsylvania (State)

4. P. O. ADDRESS: P. O. Box 30

A. State College (City) B. Penna. (State) C. 16801 (Zip Code) D. Area Code 814 865-6343 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 185
B. ALL OTHER PERSONNEL (Total): 263

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 7,433,000
B. EXTRAMURAL (Total): $ 1,125,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

ORL's emphasis and competence is primarily in hydroacoustics (science of underwater sound), signal processing (maximize the information from a given signal), and hydromechanics (science of bodies moving through water).

ORL/PSU was assigned the mission for basic and applied research in the ordnance sciences, with particular attention to guidance and control systems for underwater missiles. The mission has remained constant throughout the years.

The initial competence in electronics, mechanics, and acoustics was augmented by hydromechanics when the Garfield Thomas Water Tunnel was built in 1946. This test facility met the needs for fundamental studies to increase vehicle speed and performance.

Recent trends toward systems approaches require increased competence in fire control, sonar, communications, oceanography, operations research, and Naval tactics.

12-02	Mathematical Sciences - Operations Research
15-01	Military Sciences - Antisubmarine Warfare
17-01	Nav, Comm, Detection & Countermeasures - Acoustic Detection
17-04	" " " " " - Electromag. & Acoustic Counter-/measures
19-08	Ordnance - Underwater Ordnance

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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8. MAJOR EQUIPMENT:

Garfield Thomas Water Tunnel, the largest in the world, plus usual laboratory and support equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

ORDNANCE UNIT
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

439

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Cdr. Thomas K. Ives, USN
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Key West (Nearest City) B. Monroe (County) C. Florida (State)

4. P. O. ADDRESS: Naval Ordnance Unit, U. S. Naval Station
A. Key West (City) B. Florida (State) C. 33040 (Zip Code) D. A.C. 305 296-3511 x 88271 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 12
B. ALL OTHER PERSONNEL (Total): 196

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1.573 M
B. EXTRAMURAL (Total): $ .151 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The mission of this facility is to conduct preproduction and evaluation tests and provide support services in connection with development, test, evaluation and analysis of ordnance equipment (principally underwater). The facility has some 46,000 sq ft of laboratory and workshop area available to tenants. All types of electrical power, compressed air, nitrogen and water are or can be made available in any work area. Electrical, machine and carpenter shops are available for modification or alteration of work spaces and to assist tenants in installation, modification, maintenance and repair of their equipment.

14-02	Methods and Equipment - Laboratories, Test Facilities, and Test Equipment
14-04	" " " - Reliability
19-08	Ordnance - Underwater Ordnance

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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440 8. MAJOR EQUIPMENT:

Two service craft (YF(RT) for torpedo launching or at-sea platforms; three retrievers and three laboratory/monitor/target type boats; IBM 1620 MOD 1 computer; three Benson-Lehner film readers; Benson-Lehner electric plotter; five mobile acoustic targets, MK 35; two shallow fixed targets, MK 4; and deep fixed target, MK 17-0.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

PACIFIC MISSILE RANGE
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: RADM H.S. Moore, Cdr.
A. TECHNICAL DIRECTOR: W.L. Miller

3. LOCATION: A. Ventura (Nearest City) B. Ventura (County) C. California (State)

4. P. O. ADDRESS: Pacific Missile Range
A. Point Mugu (City) B. California (State) C. 93041 (Zip Code) D. 805 982-7851 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 516
B. ALL OTHER PERSONNEL (Total): 3625

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 58.755 M
B. EXTRAMURAL (Total): $ 36.915 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

To provide range support for the Department of Defense and other designated government agencies for launching, tracking and collecting data in guided missile, satellite and space vehicle research, development, evaluation and training program and actual operations.

Tasks: (1) Perform applied research in the field of range instrumentation and other range systems;
(2) Perform planning design and engineering functions;
(3) Perform test and evaluation functions;
(4) Fabricate prototype and specialized instrumentation and data handling systems, components and peripheral equipments;
(5) Perform training in the operation and maintenance of range equipment;
(6) Perform range pre-flight operations, including: planning, area surveillance, range clearance, frequency interference control; ground safety, meteorology.
(7) Provide administrative, logistic and operational support to tenants, assigned activities and range users as appropriate.

01-05	Aeronautics - Air Facilities
09-02	Electronics & Electrical Engineering - Computers, 06- Telemetry
14-02	Methods and Equipment - Labs, Test Facilities, and Test Equipment, 04- Reliability
16-01	Missile Technology - Missile Launching and Ground Support, 02- Missile Trajectories

A. ADDITIONAL COSATI CODES:

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8. MAJOR EQUIPMENT:

Missile launch complexes, metric tracking facility, radar tracking facility, optic tracking facility, telemetry recording facility, timing operation center, electromagnetic compatibility analysis laboratory, geophysics facility, airport facilities, computer facilities (CDC 3100, IB 360/40, IBM 1460B, IBM 7094, NCR 315, UNIVAC 1206, UNIVAC 1212, UNIVAC 1004, SDS 910, UNIVAC 1218, UNIVAC 1230, RCA 1402)

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

PERSONNEL RESEARCH ACTIVITY — INSTALLATION

DOD (NAVY) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Cdr. Karl E. Kuehner, USN, CO A. TECHNICAL DIRECTOR: Dr. Edmund E. Dudek

3. LOCATION: A. San Diego (Nearest City) B. San Diego (County) C. Calif. (State)

4. P. O. ADDRESS: Naval Personnel Research Activity

A. San Diego (City) B. Calif. (State) C. 92152 (Zip Code) D. A.C. 714 225-6011 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 176

B. ALL OTHER PERSONNEL (Total): 85

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 2.994 M

B. EXTRAMURAL (Total): $ .000 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Develops new concepts and improved methods for acquiring, classifying, training, distributing and retaining personnel for maximum utilization of manpower. Develops mathematical models and computer programs for improved management and administration of Naval Personnel. Develops new training technology and improved methods for measuring aptitudes, performance and achievement of Naval Personnel. Determines quantitative and qualitative personnel requirements and training requirements for new weapon and support systems. Designs, develops and evaluates experimental training programs. Assesses talents, training and utilization of marginal personnel.

05-08 Behavioral and Social Sciences - Man-Machine Relations
05-09 " " " " - Personnel Selection, Training, & Evaluation
05-10 " " " " - Psychology (Individual & Group Behavior)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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8. MAJOR EQUIPMENT:

No major equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

PERSONNEL RESEARCH AND DEVELOPMENT LABORATORY — INSTALLATION
DOD (NAVY) — AGENCY OR DEPT.

445

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Cdr. R. E. McCoy
A. TECHNICAL DIRECTOR: Mr. E. M. Ramras

3. LOCATION A. Washington (Nearest City) B. -- (County) C. D. C. (State)

4. P. O. ADDRESS: Naval Personnel Research and Development Laboratory
A. Washington (City) B. D.C. (State) C. 20390 (Zip Code) D. A.C. 202 OX 32510 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 142
B. ALL OTHER PERSONNEL (Total): 129

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 3.236 M
B. EXTRAMURAL (Total): $ .000 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Personnel Research Laboratory plans and conducts applied R&D in personnel operations and behavioral sciences. The objectives of this research are to develop new concepts, methods, techniques and procedures for the administration and management of Navy personnel; to improve the utilization of available manpower resources; and to exploit the full potential of present and future Navy man-machine systems. The laboratory also performs staff support functions for the Navy Department and BuPers. This laboratory is comprised of both military and civilian personnel specializing in the areas of manpower utilization, personnel systems, occupational standards, personnel measurement, training and education, manpower productivity and management, personnel surveys, and human factors research on personnel and training requirements for new weapons, support, and ship systems being developed under the Navy RDT&E program. A statistical department with RCA 301 computer provides laboratory-wide statistical and data processing support. The laboratory, as a tenant, occupies space at the Washington Navy Yard, at the Naval Research Laboratory, Washington, D. C., at OPTEVFOR and ASWFORLANT, Norfolk, Va., and at various Washington area offices of the Naval Material Command.

05-08 Behavioral and Social Sciences - Man-Machine Relations
05-09 " " " " - Personnel Selection, Training, & Evaluation
05-10 " " " " - Psychology (Individual & Group Behavior)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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446 8. MAJOR EQUIPMENT:

RCA 301 Computer.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

RADIOLOGICAL DEFENSE LABORATORY
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

447

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Capt. T. K. Fick, CO
A. TECHNICAL DIRECTOR: Dr. E. P. Cooper

3. LOCATION: A. San Francisco, (Nearest City) B. San Mateo (County) C. Calif. (State)

4. P. O. ADDRESS: Naval Radiological Defense Laboratory
A. San Francisco (City) B. Calif. (State) C. 94133 (Zip Code) D. A.C. 415 648-6900 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 255
B. ALL OTHER PERSONNEL (Total): 307

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 8.867 M
B. EXTRAMURAL (Total): $ 1.719 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

This is a laboratory which performs research, development, test and evaluation of the effects of nuclear explosions, natural and controlled nuclear processes, nuclear accidents and incidents, and related fields of science and engineering. The main laboratory is in San Francisco and a field station is in Pleasanton, California. The main laboratory building has administrative offices, chemistry, physics and biomedical laboratories as well as military evaluations functions and general support functions such as library, photo labs, electronic and prototype shops. The main laboratory also has many specialized research facilities. Outlying buildings house specialized radiation production facilities, animal breeding and holding facilities. The field station has a large outdoor Cobalt-60 irradiation facility, large animal pastures, an outdoor explosion test pond facility and miscellaneous facilities for research involving radioactive materials. The laboratory has a considerable amount of specialized equipment to analyze radiation and materials, as well as equipment to produce reports.

02-05	Agriculture - Animal Husbandry
06-18	Biological and Medical Sciences - Radiobiology
06-21	" " " " - Weapon Effects
15-06	Military Sciences - Nuclear Warfare
18-03	Nuclear Science & Technology - Nuclear Explosions
18-04	" " " " - Nuclear Instrumentation
18-06	" " " " - Radiation Shielding and Protection
18-08	" " " " - Radioactivity

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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448 8. MAJOR EQUIPMENT:

Neutron Radiation Facility, Cyclotron; Particle Accelerator, Van De Graaff; Nuclear Electro-Magnetic, Pulse (EMP) Tester; Space Simulation Chamber and Solar Source; Mass Spectrometer, Time-of-Flight.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

This laboratory deactivated in November 1969.

10. DATE OF REPORT: 30 September 1969

RESEARCH LABORATORY
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Capt. James C. Matheson, USN
A. TECHNICAL DIRECTOR: Dr. Alan Berman

3. LOCATION: A. Washington (Nearest City) B. (County) C. D. C. (State)

4. P. O. ADDRESS: Naval Research Laboratory
A. Washington (City) B. D. C. (State) C. 20390 (Zip Code) D. 301-767-2000 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 1362
B. ALL OTHER PERSONNEL (Total): 2272

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 91.583 M
B. EXTRAMURAL (Total): $ 8.951 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

To conduct scientific research and development in the physical sciences and related fields directed toward new and improved materials, equipment, techniques and systems for the Navy.

This is the Navy's principal physical sciences research laboratory. Major areas are electronics (including radar, communications, electronic warfare), chemistry, metallurgy, physics (general, plasma, nuclear), mathematics, acoustics and oceanology. As the corporate laboratory of the Navy, NRL has a responsibility for maintaining a program which will furnish the scientific basis from which development efforts and operational equipments or techniques will evolve.

07-02	Chemistry - Inorganic Chemistry; 03 - Organic Chemistry; 04 - Physical Chemistry; 05 - Radio and Radiation Chemistry
09-01	Electronics and Electrical Engineering - Components; 02 - Computers; 05 - Subsystems
11-06	Materials - Metallurgy and Metallography
12-01	Mathematical Sciences - Mathematics and Statistics
20-01	Physics - Acoustics; 03 - Electricity and Magnetism; 04 - Fluid Mechanics; 05 - Masers and Lasers; 07- Particle Accelerators; 08 - Particle Physics; 09 - Plasma Physics; 12 - Solid State Physics; 13 - Thermodynamics 14 - Wave Propagation

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8. MAJOR EQUIPMENT:

Major facilities and equipment include: 75-Mev sector focusing cyclotron, high-level radiation laboratory, 150-kilogauss magnet facility, particle accelerators (60-Mev linear, 5-Mev Van de Graaff), thermonuclear research facility, transducer model and materials test tanks, radio telescopes, space simulation facility, deep ocean research facility, two ships, four aircraft.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

NRL has the following field sites:

Chesapeake Bay Division, Chesapeake Beach, Md.
(2 mil 103 civ assigned)

Hybla Valley Field Site, Alexandria, Va.
(no assigned personnel)

Maryland Point Observatory, Charles County, Md.
(no assigned personnel)

NRL Waldorf Annex, Waldorf, Md.
(1 caretaker)

Stump Neck Field Site, Indian Head, Md.
(no assigned personnel)

Marine Corrosion Laboratory,
Key West, Fla.
(two assigned civilians)

Naval Radio Station,
Sugar Grove, West Virginia
(10 assigned civilians)

Underwater Sound Reference Div.,
Orlando, Fla.
(98 assigned civilians)

Two Navy ships are also available to NRL. These are the MSTS Gibbs and MSTS Mizar, both utilized for oceanographic purposes.

10. DATE OF REPORT: 30 September 1969

SECURITY ENGINEERING FACILITY — INSTALLATION
DoD (NAVY) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: CDR D. L. Cooper, USN
A. TECHNICAL DIRECTOR: Gerald Martin

3. LOCATION: A. Washington (Nearest City) B. – – (County) C. D. C. (State)

4. P. O. ADDRESS: Naval Security Engineering Facility
A. Washington (City) B. D. C. (State) C. (Zip Code) D. A.C. 202 OX 77139 or 50411 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 32
B. ALL OTHER PERSONNEL (Total): 66

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1.201 M
B. EXTRAMURAL (Total): $ .097 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Provide technical support and services on cryptographic and cryptologic systems and equipment, and perform such other tasks as assigned by Commander, Naval Electronic Systems Command.

Subsystem integration, applied research, design, development, engineering and technical services, technical guidance and media for dissemination Tempest studies, systems analysis, reliability analysis, base engineering, commodities acquisition. Material distribution and maintenance, administrative support and other NAVELEX assignments. Provide quick reaction to critical nonprogrammed tasks within compressed time frame. Effort frequently entails direct overlap between development and production spectrum of competency and embodies such disciplines as operational systems analysis, systems engineering, design, development, test and evaluation, and project and program management.

15-04 Military Sciences - Intelligence

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

452 8. MAJOR EQUIPMENT:

Equipments normally employed in cryptographic R&D laboratories.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

SHIP RESEARCH AND DEVELOPMENT CENTER	DOD (NAVY)
INSTALLATION	AGENCY OR DEPT.

453

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR OPERATED

C. CONTRACTOR:

2. DIRECTOR: Capt. Manuel da C. Vincent, USN A. TECHNICAL DIRECTOR: Dr. A. Powell

3. LOCATION: A. Carderock (Nearest City) B. Montgomery (County) C. Md. (State)

4. P. O. ADDRESS: Naval Ship R & D Center *

A. Washington (City) B. D.C. (State) C. 20007 (Zip Code) D. A.C. 301 365--2600 Ext.222 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 760
B. ALL OTHER PERSONNEL (Total): 1186

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 35.487 M
B. EXTRAMURAL (Total): $ 4.941 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The capabilities and areas of technical endeavor of the Naval Ship Research and Development Center include: conducting research, development, test and evaluation programs in naval architecture, marine engineering, aerodynamics, advanced systems concepts, assigned areas of naval defense and ocean technology, and related fields of science and engineering.

09-02	Electronics and Electrical Engineering - Computers
13-10	Mechanical, Indus, Civil & Marine Engrg - Marine Engineering
17-01	Navigation, Comm, Detection & Countermeasures - Acoustic Detection
20-01	Physics - Acoustics
20-04	Physics - Fluid Mechanics

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Seven large concrete fresh water basins. Six range in size from 142' x 10' x 5.5' deep to 2968' x 21' x 10' deep. One basin is circular with a 260' diameter and depth to 21 feet. Towing carriages and pneumatic wavemakers are part of the basins. Additional facilities include variable pressure water tunnels; deep submergence pressure-test tanks; ship and personnel protection facilities; underwater explosion test pond and pits; ship shock simulators; mobile noise barge (MONOB); acoustic data analysis center; anechoic test facility; vibration generators; aerodynamic test facilities--subsonic, transonic, supersonic and hypersonic wind tunnels; computer facilities; and hydrofoil special trials unit.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

* The Naval Ship R & D Center was established on 31 March 1967, as a result of the consolidation of the David Taylor Model Basin, Carderock, Maryland and the U.S. Navy Marine Engineering Laboratory, Annapolis, Maryland. On 1 November 1967, the Navy Mine Defense Laboratory, Panama City, Florida became the third component of the Center complex.

For additional details about the latter two installations, see the separate reports for the Naval Ship R & D Laboratory at Annapolis, Maryland and Panama City, Florida, respectively.

10. DATE OF REPORT: 30 September 1969

SHIP R&D LABORATORY	DOD (NAVY)
INSTALLATION	AGENCY OR DEPT

455

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Capt. L.O. G. Whaley, CO
A. TECHNICAL DIRECTOR: Dr. Norman H. Jasper

3. LOCATION: A. Panama City (Nearest City) B. Bay (County) C. Florida (State)

4. P. O. ADDRESS: Naval Ship R&D Laboratory
A. Panama City (City) B. Florida (State) C. 32401 (Zip Code) D. A.C. 904 234-2281 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 259
B. ALL OTHER PERSONNEL (Total): 501

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 12.479 M
B. EXTRAMURAL (Total): $ 3.566 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

To support the mission of the Naval Ship Research and Development Center by carrying out assigned research and development tasks in scientific and engineering fields.

Plan and conduct RDT&E, and provide support to operating forces, Naval and government agencies in surface, subsurface and airborne mine defense, acoustic and torpedo countermeasures, in-shore warfare, and related science and engineering.

09-02	Electronics and Electrical Engineering - Computers
17-01	Navigation, Comm, Detection & Countermeasures-Acoustic Detection
17-04	" " " " " -Electromagnetic & Acoustic Cntr. /Meas.
17-06	" " " " " -Magnetic Detection
17-07	-Navigation & Guidance
17-08	-Optical Detection
19-08	Ordnance - Underwater Ordnance
20-03	Physics - Electricity and Magnetism

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

456 8. MAJOR EQUIPMENT:

Computers--CM evaluator, SDS 9300 digital and two ADI 256 analogs, B5500. Two Gulf research platforms in 100-foot and 60-foot water with living labs for 30 + 4 people; optical tracking system; model two basin; electronic track range; underwater acoustics facility--track range, analog data analysis, transducer development and evaluation, transducer test pool, simulator and signature generator, test platform; magnetics facility--Helmholtz coil, sweep simulator, target detection and classification range; pressure-signature simulator; wet submersible; marine animal facility; man-rated ocean simulation facility under construction.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

SHIP R&D LABORATORY — INSTALLATION

DOD (NAVY) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Capt. A. Bodnaruk, CO
A. TECHNICAL DIRECTOR: Mr. H. V. Nutt

3. LOCATION: A. Annapolis (Nearest City) B. Anne Arundel (County) C. Maryland (State)

4. P. O. ADDRESS: Naval Ship R&D Laboratory
A. Annapolis (City) B. Md. (State) C. 20007 (Zip Code) D. A.C. 301 268-7711 x 8215 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 408
B. ALL OTHER PERSONNEL (Total): 467

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 15.504 M
B. EXTRAMURAL (Total): $ 1.234 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Annapolis Division of NSRDC is essentially a Marine Engineering Laboratory composed of eight technical subdivisions and all necessary supporting shipboard machinery and auxiliary systems, and the related fields of science and engineering. The technical subdivisions provide expert capability in the general areas of electrical and electronic systems, ship silencing, shipboard machinery and piping systems, power and propulsion, friction and wear, naval alloys, instrumentation and analysis and computer technology. Initiated in 1903 as the Engineering Experiment Station, the mission of the installation has evolved from that of a testing station to an R&D activity with lead laboratory responsibility in the area of shipboard machinery. As a Division of the Naval Ship R&D Center, this activity is under direction of the Chief of Naval Material. A major portion of the work performed is to satisfy the needs of the Naval Ship Systems Command.

09-02	Electronics and Electrical Engineering - Computers
09-03	" " " " - Electronic & Electrical Engineering
10-02	Energy Conversion (Non-Propulsive) - Power Sources
10-03	" " " " - Energy Storage
11-04	Materials - Composite Materials
11-06	" - Metallurgy and Metallography
13-01	Mech, Indus, Civil & Marine Engrg - Air Conditioning, Heating, Lighting & Vent-
13-07	" " " " " " - Hydraulic & Pneumatic Equipment / ilating
13-10	" " " " " " - Marine Engineering
13-11	" " " " " " - Pumps, Filters, Pipes, Tubing & Valves
20-03	Physics - Electricity and Magnetism

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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8. MAJOR EQUIPMENT:

Ocean pressure lab, sound and vibration measurement lab, acoustical research on submarine hull, ballast-blow test facility, magnetic fields lab, acoustic data-processing center, main seawater piping system test facility, acoustic data information center, machine-human factors and visual displays facility, technical services facility, fuel-cell facility, water chemistry facility, material analysis.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

SPACE SYSTEMS ACTIVITY
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

459

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Capt. Winthrop P. Robinson, USN A. TECHNICAL DIRECTOR:

3. LOCATION: A. Los Angeles (Nearest City) B. Los Angeles (County) C. Calif. (State)

4. P. O. ADDRESS: Navy Space Systems Activity

A. Los Angeles (City) B. Calif. (State) C. 90045 (Zip Code) D. A.C. 213 643-1824 or 2564 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 2

B. ALL OTHER PERSONNEL (Total): 31

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 0.664 M

B. EXTRAMURAL (Total): $ 2.036 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Management of systems development of satellites and related equipment for support of the Navy.

Field office of Naval Air Systems Command. Provide engineering competence and management of assigned space systems. Provide an interface to Naval activities responsible for technical development involving space systems. Provide guidance to NAVAIR on scope and contents of its advanced study research and exploratory programs and future applications thereof.

17-07 Navigation, Communications, Detection and Countermeasures - Navigation and Guidance

22-01 Space Technology - Astronautics

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

No major equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

SUBMARINE MEDICAL CENTER — INSTALLATION
DOD (NAVY) — AGENCY OR DEPT

461

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Capt. J. E. Stark, MC, USN, CO
A. TECHNICAL DIRECTOR: Charles F. Gell, MD, DSC

3. LOCATION: A. New London, Groton (Nearest City) B. New London (County) C. Connecticut (State)

4. P. O. ADDRESS: Naval Submarine Medical Center
A. New London, Groton (City) B. Conn. (State) C. 06342 (Zip Code) D. 203-449-3011 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 48
B. ALL OTHER PERSONNEL (Total): 31

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1.453M
B. EXTRAMURAL (Total): $ .072M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The mission of the Center is to administer the various components by direction, coordination and supervision of clinical and hospitalization services, submarine medical training, submarine research, and evaluation of submarine medical materiel.

In the performance of its mission, the center provides/conducts training in submarine and diving medicine and related matters to medical officers; occupational radiation medicine, basic sciences, related matters, in service and on-the-job training to hospital corpsmen; research clerkship for medical students in Ensign (1915) program; investigative services and medical assistance to Bureau of Ships (Code 1500), Bureau of Naval Weapons (Special Projects Officer), Commander Submarine Force, U. S. Atlantic Fleet, Commander Submarine Force, U. S. Pacific Fleet, and other submarine and diving activities as requested; research in fields of respiratory physiology, medical phychology, vision, audition, human factors engineering, dentistry, and applicable allied sciences as they apply to submarine or closed environment; and test and evaluate submarine medical and related equipment.

05-05 Behavioral and Social Sciences - Human Factors Engineering; 08 Man-Machine Relations;
06-05 Biological and Medical Sciences - Clinical Medicine; 06 Environmental Biology; 07 Escape, Rescue and Survival; 11 Life Support; 19 Stress Physiology

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES
Conducted By THE NATIONAL SCIENCE FOUNDATION For The
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462 8. MAJOR EQUIPMENT:

Coleman spectrophotometers, Macro and Micro; Coleman Flame photometer; Cahn electro microbalance; oven; incubator; Bechman F pH meter; Health recording pH meter; Micro gasometer.

Two Ritter dental units, XRM 90 DUP dental x-ray machine, dental ultrasonics prophylaxis unit, x-ray dark room for film processing. RATER (Response Anal Tester); LOGIT (Logical Anal Tester).

Pulmonary Function Laboratory. 300 ft. hyperbaric chamber; 200 ft. hyperbaric chamber; 2000 ft. animal chamber. 300 ft. hyperbaric chamber. 2000 ft. hyperbaric chamber four vessels. Anechoic chamber; Reverberation chamber.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

TOXICOLOGY UNIT
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: J. Siegel, Capt, MSC, USNR
   A. TECHNICAL DIRECTOR:

3. LOCATION: A. Bethesda (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: Navy Toxicology Unit, NNMC
   A. Bethesda, (City) B. Maryland (State) C. 20014 (Zip Code) D. A.C. 301 295-0134 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 9
   B. ALL OTHER PERSONNEL (Total): 16

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 0.276M
   B. EXTRAMURAL (Total): $ .000M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Develop rapid practical toxicological answers for forces afloat. Evaluate for toxic potential material and equipment going aboard subs. Conduct RDT&E and provide services in operational toxicology and health engineering for forces afloat and for weapon-system design and use. Conduct exploratory studies in hyperbaric toxicology, chronic and subacute inhalation studies of submarine air contamination, and broad-based toxicity screening of special potentially hazardous material.

06-01 Biological and Medical Sciences - Biochemistry
06-05 " " " " - Clinical Medicine
06-15 " " " " -- Pharmacology

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

The Navy Toxicology Unit consists of approximately 3800 square feet at the National Naval Medical Center. Inhalation studies are performed in exposure chambers which are used at ambient pressures. These chambers are equipped with nine channel monitors to assure that constant conditions can be maintained. In addition, there are five animal holding (acclimatization) chambers. Chamber atmospheres are analyzed and monitored on six gas chromotographs or three infrared analyzers. A back-up facility for measuring air contaminants is maintained in the Chemistry Laboratory. Standard hematological and histological tests are done in the Pathology Laboratory. The Pharmacology Laboratory maintains the capability of determining the mode and site of action of chemicals under study. The Biochemistry Laboratory is concerned with sub-cellular alterations (blood and tissue components, enzymes, and co-enzymes, etc.) brought about by toxic agents working singly or in combination. In addition to sub-clinical manifestations of toxicity, a major emphasis is also placed on function of the whole organ. Equipment, exposure--six Rochester ambient pressure inhalation chambers, six Leach 30-liter ambient pressure inhalation chambers; one 8.58-liter 150-psig hyperbaric exposure chamber. Equipment, analytical--automatic biochemical and CG-IR-UV instrumentation. Chemical capabilities in toxicology include all major toxicological screening techniques; in-depth, long-term inhalation studies; and limited acute hyperbaric inhalation studies.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

TRAINING DEVICES CENTER
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Capt. J. N. Miller, CO
A. TECHNICAL DIRECTOR: Dr. H. H. Wolff

3. LOCATION: A. Orlando (Nearest City) B. Orange (County) C. Florida (State)

4. P. O. ADDRESS: Naval Training Devices Center
A. Orlando (City) B. Florida (State) C. 32813 (Zip Code) D. A.C. 305 841-5611 x 436 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 312
B. ALL OTHER PERSONNEL (Total): 900

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 20.235 M
B. EXTRAMURAL (Total): $ 73.300 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Facility carries out a program of applied research directed toward the improvement of training device technology and which consists of the Applied Optics and Earth Sciences Laboratory, Training Simulation Computer Sciences Laboratory, Human Learning Research Laboratory, and Research Support Services Activity. The principal areas in which the facility provides research, services, and investigations for ultimate application by the training device design engineers are: instrumental or visual sensors representing environment; detection and transmission of visual information; oceanographic, meteorologic, and cartographic training displays; electromagnetic and electro-acoustical detection and transmission; bioelectronic research; real-world visual simulation systems; application of computer technology to simulation problems; human factors affecting learning.

05-09	Behavioral & Social Sciences-Personnel Selection, Training & Evaluation
08-05	Earth Sciences and Oceanography - Geodesy
08-06	" " " " - Geography
08-10	" " " " - Physical Oceanography
09-02	Electronics and Electrical Engineering - Computers

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

A five meter optical bench and associated equipment, a high precision 160 CM optical bench with collimator, microscope and nodal slide, and a precision spectrometer and sphereometer. Antenna Pattern Recorder, Azimuth Over Elevation Positioner, Positioner Control, Azimuth Control Indicator, Elevation Control Indicator, Transmitting Antenna Assy (4-12.4gc/s). Motion platform integrated with a wide angle visual display, a single seat aircraft cockpit and six foot width ship's bridge can be positioned under a visual projector, Wide Angle Television System, Virtual Image Display, and an instrumented small arms firing range, (100 feet long). An SDS SIGMA 7 general purpose digital computer, a REAC 550 general purpose analog computer, a simulated fixed wing aircraft cockpit and motion system, a simulated helicopter cockpit and motion system, universal monitor console and an interface system.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

UNDERSEA R&D CENTER
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

467

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Capt. C. B. Bishop
A. TECHNICAL DIRECTOR: Dr. Wm. B. McLean

3. LOCATION: A. San Diego (Nearest City) B. San Diego (County) C. California (State)

4. P. O. ADDRESS: Naval Undersea R&D Center
A. San Diego (City) B. Calif. (State) C. 92132 (Zip Code) D. A.C. 714 222-6311 x 725 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 593
B. ALL OTHER PERSONNEL (Total): 1203

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 39.155 M
B. EXTRAMURAL (Total): $ 17.704 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The mission is to conduct a program of warfare analysis, research, development, test, evaluation, systems integration, and Fleet engineering support in undersea warfare and ocean technology. Ocean sciences, sensors and sonar systems functions are located at the waterfront area in San Diego.

08-03	Earth Sciences and Oceanography - Dynamic Oceanography
08-08	" " " " - Hydrology and Limnology
08-10	" " " " - Physical Oceanography
15-01	Military Sciences - Antisubmarine Warfare
17-01	Navigation, Comm, Detection & Countermeasures - Acoustic Detection
17-04	" " " " " - Electromag. & Acoustic Counterm.
19-08	Ordnance - Underwater Ordnance
20-01	Physics - Acoustics

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES
Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

UNIVAC 1108 Digital Computer; CP 6428 Digital Computer; EAI 8800 Analog Computer; EAI 231RV Analog Computer; EAI 231R Analog Computer, CARCO Mod 5-540 Flight Table; CDC Mod dd80D Data Display; AN/UYA(V) Display System; Fire Control Computer A.C. Mk 53; Analog-Digital, Digital-Analog; Conversion Equipment; Anechoic Tank - 14' x 14' x 20' deep.

Deep Dunk Winch; Tape Recorders; Deep Dunk Sonar Equipment; Vacuum System; Deep Dunk Van and Trailer; P/M Van. Target boats, patrol boats, barges, high pressure autoclave systems 6" and 14", underwater TV cameras, and ultrasonic tank.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission, functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

Underwater ballistics ranges and propulsion laboratories are located at the Morris Dam Test Range near Azuza, California. Sea range operations including torpedo and ocean acoustics tests are conducted out of facilities assignec at the Long Beach Naval Station, San Clements Island, about 50 miles south of Long Beach, has facilities for missile tests, ocean technology, the Poseidon Program and other programs requiring clear water of various depths adjacent to shore-mounted instrumentation and support facilities.

10. DATE OF REPORT: 30 September 1969

UNDERWATER SOUND LABORATORY
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
   - (1) ☒ GOVERNMENT-OPERATED
   - (2) ☐ FFRDC
   - (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
   - (1) ☐ GOVERNMENT-OPERATED
   - (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Capt. Bryce D. Inman
A. TECHNICAL DIRECTOR: Harold E. Nash

3. LOCATION: A. New London (Nearest City) B. New London (County) C. Conn. (State)

4. P. O. ADDRESS: Navy Underwater Sound Laboratory
A. New London (City) B. Conn. (State) C. 06321 (Zip Code) D. A.C. 203 442-0771 x 2212 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 565
B. ALL OTHER PERSONNEL (Total): 715

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 30.275 M
B. EXTRAMURAL (Total): $ 7.905 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Laboratory's function includes R&D in the following areas of undersea warfare: Sonar Ocean-Surveillance Systems for continental defense against missile-launching submersibles; complete Sonar detection, attack systems and communications systems for our submarine forces; anti-submarine detection systems for surface craft; submarine radio communications systems, underwater acoustics research in the Arctic Ocean, optical communications systems; and Polaris Command Communications.

08-03 Earth Sciences and Oceanography - Dynamic Oceanography
08-10 " " " " - Physical Oceanography
15-01 Military Sciences - Antisubmarine Warfare
17-01 Navigation, Comm, Detection & Countermeasures-Acoustic Detection
17-02 " " " " " - Communications
17-04 " " " " " - Electromagnetic & Acoustic
17-08 " " " " " - Optical Detection./ Counterme

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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8. MAJOR EQUIPMENT:

To provide RDT&E support to NAVSHIPS, NAVELEX, NAVORD, NAVOCEANO. Major equipment and facilities--analog and digital computers, environmental test facilities, vacuum range, holography laboratory, transducer model lab, quiet hydrodynamic flow facility, wind tunnel, underwater optical range, acoustic data-reduction facility, radio test laboratory, acoustic test tank, transducer measurement and calibration facility, antenna evaluation facility, technical information center, oceanographic and underwater acoustic research field facility.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

UNDERWATER WEAPONS RESEARCH AND ENGINEERING STATION
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

471

1. TYPE OF FEDERAL GOVERNMENT OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Capt. Harry C. Dittler, USN, Comd. A. TECHNICAL DIRECTOR: Gerald G. Gould

3. LOCATION: A. Newport (Nearest City) B. Newport (County) C. Rhode Island (State)

4. P. O. ADDRESS: Naval Underwater Weapons Res. and Eng. Station
A. Newport (City) B. R.I. (State) C. 02844 (Zip Code) D. 401-841-2526 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 583
B. ALL OTHER PERSONNEL (Total): 974

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 25.980 M
B. EXTRAMURAL (Total): $ 25.001 M

MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

This facility has the capability to conduct research, development, test and evaluation on underwater weapons systems, assemblies, components and materials; to provide engineering and technical assistance to the Naval Ordnance Systems Command in the coordination of procurement, production, maintenance and quality assurance programs for assigned underwater weapons systems, including torpedoes, underwater missiles, fire control, launchers, torpedo tubes, and associated equipments; to perform service engineering for assigned equipments; and by direct liaison, to provide technical assistance to fleet units to assure combat readiness of underwater weapons systems in service use; to receive, recondition, store and issue torpedoes, fire control subassemblies and related materials.

15-01 Military Sciences - Antisubmarine Warfare
19-05 Ordnance - Fire Control and Bombing Systems
19-08 Ordnance - Underwater Ordnance
21-03 Propulsion and Fuels - Electric Propulsion

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES
Conducted By THE NATIONAL SCIENCE FOUNDATION For The
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8. MAJOR EQUIPMENT:

Major unique equipments and facilities include a depth test facility for testing propulsion systems under simulated depths of 5600 feet. A complete fire-control lab for advanced research and development tasks. A weapon-launching pier and instrumented shallow-water range which extends to 5000 yards. Launcher laboratory which can test-fire full-sized torpedoes under simulated depth conditions. System analysis and computer labs to evaluate existing and proposed weapon systems and to conduct data reduction and analysis.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

WEAPONS CENTER
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Capt. M. R. Etheridge
A. TECHNICAL DIRECTOR: Dr. T. S. Amlie

3. LOCATION: A. China Lake (Nearest City) B. Kern (County) C. California (State)

4. P. O. ADDRESS: Naval Weapons Center
A. China Lake (City) B. Calif. (State) C. 93557 (Zip Code) D. 714-375-1411 X71400 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 1507
B. ALL OTHER PERSONNEL (Total): 4013

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 100.642M
B. EXTRAMURAL (Total): $ 101.216M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The mission of the Naval Weapons Center, China Lake, is: To conduct a program of warfare analysis, research, development, test, evaluation, systems integration, and fleet engineering support in naval weapons systems principally for air warfare and to conduct investigations into related fields of science and technology.

The mission of the Naval Weapons Center Corona Laboratories, Corona, is to support the mission of the Naval Weapons Center in selected weapons systems, components and investigations.

01-05	Aeronautics - Air Facilities
07-02	Chemistry - Inorganic Chemistry; 03 Organic Chemistry; 04 Physical Chemistry
09-01	Electronics & Electrical Engineering - Components; 02 Computers; 06 Telemetry
15-03	Military Sciences - Defense
16-01	Missile Technology - Missile Launching and Ground Support; 02 Missile Trajectories; 03 Missile Warheads and Fuzes; 04 Missiles; 04.1 Air- and Space-Launched Missiles
17-05	Navigation, Comm, Detection & Countermeasures-Infrared & Ultraviolet Detection; 07 Navigation and Guidance; 09 Radar Detection
19-01	Ordance - Ammunition, Explosives, and Pyrotechnics; 04 Explosions, Ballistics, and Armor; 05 Fire Control and Bombing Systems; 07 Rockets
21-08	Propulsion and Fuels - Rocket Motors and Engines

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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8. MAJOR EQUIPMENT:

Facilities include 10-acre Michelson Laboratory, warhead research lab., ground and aircraft ranges, supersonic and smaller test tracks, solid state devices lab., atmospheric applications lab., fuze model range, technical library, large machine shop, heat-treat and electroplating shops, Naval air facility, electronic warfare test range, unfamiliar target range.

Specialized equipment includes scanning electronic microscope, Univac 1108 and IBM 360-50 computers, numerical controlled machine tools, Capri radar.

The mission of the Naval Weapons Center, China Lake, including the Naval Weapons Center Corona Laboratories, Corona, Calif., as a supportive shore (field) activity, was established as a successor to the Naval Ordance Test Station, China Lake, as of 28 June 1967.

The Naval Weapons Center is under the direct command of the Chief of Naval Material.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

WEAPONS EVALUATION FACILITY
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

475

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: W. W. Strong, Capt. USN, CO   A. TECHNICAL DIRECTOR: F. X. Bushner

3. LOCATION: A. Albuquerque (Nearest City)   B. Bernalillo (County)   C. New Mexico (State)

4. P. O. ADDRESS: Naval Weapons Evaluation Facility

A. Albuquerque (City)   B. N. Mex. (State)   C. 87117 (Zip Code)   D. A.C. 505 247-1711 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 119
B. ALL OTHER PERSONNEL (Total): 211

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 3.959 M
B. EXTRAMURAL (Total): $ .038 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Plan-coordinate Navy nuclear safety program. Conduct nuclear system safety studies. Reviews on U.S. and Foreign systems. Publish new-revised nuclear and non-nuclear checklists. Verify associated loading manual. Determine military characteristics and stockpile environment for new weapons. Support board inspection and surveillance of nuclear weapon trials and ship acceptance.

Provide design criteria military characteristics stockpile-to-target data for CNO specific operational requirements on new nuclear systems. Plan improved methods assuring effective Navy nuclear safety program. Plan conduct safety studies-reviews on Navy systems. Support board of inspection and survey. Conduct vulnerability analysis of Navy aircraft to nuclear effects and develop new methods for emergency destruction of weapons. Advance state-of-art in nuclear-nonnuclear checklists development manual, verification of reliability cards. Perform tests evaluations and provide technical support for nuclear-nonnuclear weapon systems. Assist CNO in nuclear safety and prevention of accidents-incidents, plan-conduct nuclear systems safety studies-reviews, plan-coordinate Navy nuclear safety program. Conduct nuclear systems trials for board inspection and survey.

14-02 Methods and Equipment - Laboratories, Test Facilities, and Test Equipment
14-04 " " " - Reliability
15-06 Military Sciences - Nuclear Warfare
18-03 Nuclear Science and Technology - Nuclear Explosions

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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8. MAJOR EQUIPMENT:

No major equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

WEAPONS LABORATORY
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Capt. Steven N. Anastasion
A. TECHNICAL DIRECTOR: Bernard Smith

3. LOCATION: A. Dahlgren *(Nearest City)* B. King George *(County)* C. Virginia *(State)*

4. P. O. ADDRESS: Naval Weapons Laboratory
A. Dahlgren *(City)* B. Virginia *(State)* C. 22448 *(Zip Code)* D. A.C. 703 663-8101 *(Telephone (Area Code & No.))*

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 842
B. ALL OTHER PERSONNEL (Total): 1514

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 46.433 M
B. EXTRAMURAL (Total): $ 5.919 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Naval Weapons Laboratory is primarily engaged in the RDT&E of naval weapons and weapon systems and their employment. It is composed of three major technical sub-laboratories; the Computation and Analysis Laboratory which is the prime agency of the Naval Material Command in the fields of computation, data processing, and exterior ballistics; the Warhead and Terminal Ballistics Laboratory which specializes in warhead R&D, terminal ballistics, and cartridge actuated devices; and the Weapons Development and Evaluation Laboratory which conducts research in support of the development of fleet weapons systems, develops ordnance components and conducts weapon system evaluations. Additional capabilities and facilities are available for work in the following areas: Astronautics, satellite geodesy, computer science, operations research, digital fire control systems, warfare analysis, mathematical physics, guided missile launchers, target vulnerability, materials research, electromagnetic radiation hazards, electromagnetic compatibility, biological and chemical warfare, interior ballistics, weapons safety, antisubmarine warfare, geoballistics, armament concepts and ordnance instrumentation.

06-18	Biological and Medical Sciences - Radiobiology
09-02	Electronics and Electrical Engineering - Computers
12-01	Mathematical Sciences - Mathematics and Statistics
12-02	" " - Operations Research
15-01	Military Sciences - Antisubmarine Warfare
15-02	" " - Chemical, Biological, and Radiological Warfare
16-01	Missile Technology - Missile Launching and Ground Support
16-02	" " - Missile Trajectories
19-01	Ordnance - Ammunition, Explosives, and Pyrotechnics
22-01	Space Technology - Astronautics

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Unique facilities include a calibrated water test range 5 miles wide and 25 miles long with test mounts and emplacements for aircraft and naval guns through 16" and supporting facilities, a conical shock tube for simulating nuclear blasts of up to 20 kilotons, a biological/chemical devices test chamber comprising a full-scale mock-up of a shipboard magazine, simulated ships' magazines, the most complete Computation and Analysis Center within Navy, airborne laboratories for measuring electromagnetic environment, and casualty simulation, environmental testing and terminal ballistic experimental facilities.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

WEATHER RESEARCH FACILITY
INSTALLATION

DOD (NAVY)
AGENCY OR DEPT

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Capt. W. L. Somervell, Jr. USN
A. TECHNICAL DIRECTOR: Dr. E. Kindle, Rsch Dir
Mr. H. Wobus, Tech Asst

3. LOCATION: A. Norfolk (Nearest City) B. Norfolk (County) C. Virginia (State)

4. P. O. ADDRESS: Navy Weather Research Facility
A. Norfolk (City) B. Virginia (State) C. 23511 (Zip Code) D. A.C. 703 444-2436 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 25
B. ALL OTHER PERSONNEL (Total): 54

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 0.925 M
B. EXTRAMURAL (Total): $ .611 M

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Quantify weather effects on carrier, antiair warfare, VERTREP and PHIBOPS. Design fog-dispersal operations and warm-cloud and ice-phase seeding experiments. Further improve SEAsia weather and typhoon forecasts, research NAVEUR problems of improved surface-winds forecasts for numerical ocean-wave prediction.

Exploit video-disc system to improve weather-data display and presentation. Quantify weather effects on all USN operations, consult on new weapons systems. Design and prepare related No-year USN AIMDS research plan. Extend warm-cloud and ice-phase precipitation models and experiments to mesoscale and optimize fog dispersal. Develop models and techniques to apply dynamic prediction only for maritime tropical weather forecasts. Develop prototype data display and retrieval communications and computer system to interface in operational environment with 11971 satellite and numerical prediction products. Weather research in all strategic tropical areas. Translate new developments in metro-oceano analysis and forecasting into simplified techniques for use by fleet meteorologists. Devise techniques to solve analysis and forecasting problems arising from new operational weapons, and evaluate analysis and forecasting methods derived by local NavWeaServ units.

04-02 Atmospheric Sciences - Meteorology

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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8. MAJOR EQUIPMENT:

No major equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Information presented in 7 and 8 above covers only the broader aspects of the mission functions and capabilities of the laboratory. Much more detailed information can be obtained by contacting the laboratory directly. Unclassified brochures and reports are usually available.

10. DATE OF REPORT: 30 September 1969

Federal Communications Commission

FEDERAL COMMUNICATIONS COMMISSION LABORATORY
INSTALLATION

FEDERAL COMMUNICATIONS COMMISSION
AGENCY OR DEPT.

483

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: E. W. Chapin
A. TECHNICAL DIRECTOR: E. W. Chapin

3. LOCATION: A. Laurel (Nearest City) B. Howard (County) C. Maryland (State)

4. P. O. ADDRESS: FCC Laboratory, Federal Communications Commission, P.O. Box 40
A. Laurel (City) B. Maryland (State) C. 20810 (Zip Code) D. 301-725-1585 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 15
B. ALL OTHER PERSONNEL (Total): 4

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 360,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The primary functions of the Laboratory are as described below. The FCC Laboratory is essentially a working support facility to assist the Commission in its regulatory mission and, as such, does not do original R&D work.

Investigation of Communication Systems and Systems Interference Problems (17-02.1), (20-14).

Type Approval of Communications Equipment and of Equipment Capable of Interference to Communications Equipment (17-02.1).

Development of Spectrum Occupancy Data and Monitoring Equipments (17-02.1), (14-02).

Calibration of Radio Measuring Equipments for Laboratory and Other Commission Operations (17-02.1, (14-02).

A. ADDITIONAL COSATI CODES: NONE

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

General Equipment associated with a radio propogation laboratory and an equipment performance measurement laboratory.

9. COMMENT AND PUBLICATION REFERENCES:

The functions of the FCC Laboratory are as delineated in Part 0.36 of the FCC Rules and Regulations. These functions are currently undergoing review by the Commission.

The FCC Laboratory resources are not available to commercial users. Requests from other government agencies are handled on a case-by-case determination basis. Requests for such use should be directed through the Chief of the Laboratory to the Office of the Chief Engineer, FCC.

10. DATE OF REPORT: October 8, 1969

Federal Trade Commission

CIGARETTE TESTING LABORATORY
INSTALLATION

FEDERAL TRADE COMMISSION
AGENCY OR DEPT.

487

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: George Dobbs, M.D.
   A. TECHNICAL DIRECTOR: Harold C. Pillsbury

3. LOCATION: A. Washington (Nearest City) B. -- (County) C. D. C. (State)

4. P. O. ADDRESS: Cigarette Testing Laboratory
   Division of Scientific Opinions, Federal Trade Commission
   A. Washington (City) B. D. C. (State) C. 20580 (Zip Code) D. (202) 393-6800 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 3
   B. ALL OTHER PERSONNEL (Total): 6

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 93,000
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Cigarette Testing Laboratory is responsible for the quantitative determination of nicotine and "Tar" in cigarette smoke in connection with the enforcement of the Federal Trade Commission Act and the Federal Cigarette Labeling and Advertising Act. The laboratory has the further responsibility of improving existing methods and developing new methods for the detection and identification of other components of cigarette smoke, including pesticides, which are biologically harmful.

Conducts tests to determine the nicotine and tar content of cigarettes (06-06 Biological and Medical Sciences - Environmental Biology, 07-03 Chemistry Organic - quantitative and qualitative.)

Conducts research pertaining to the detection and identification of pesticide residues in cigarette smoke (02-01 Agriculture Chemistry - Pesticides, 06-06 Biological and Medical Sciences - Environmental Biology, 07-03 Chemistry Organic - quantitative and qualitative.)

Conducts research pertaining to the detection and identification of the components of the vapor phase of cigarette smoke (06-06 Biological and Medical Sciences - Environmental Biology, 07-03 Chemistry Organic - quantitative and qualitative.)

Conducts research directed towards developing new methods or modifying existing methods for the detection of components of cigarette smoke including pesticides, which are biologically harmful (02-01; 07-03).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
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8. MAJOR EQUIPMENT:

The laboratory has standard equipment which is needed to operate a small analytical laboratory with the following specialized equipment:

2 Griffith Stills	1966
1 20 Port Automatic Smoking Machine	1966

9. COMMENT AND PUBLICATION REFERENCES:

The Federal Trade Commission's Cigarette Testing Laboratory analyzes cigarettes for nicotine and tar content by a method which has been published by the laboratory in the Journal of the Association of Official Analytical Chemists (JAOAC), Vol. 52, May 1969. The results of these tests are reported to Congress.

10. DATE OF REPORT: October 1969

TEXTILES AND FURS LABORATORY
INSTALLATION

FEDERAL TRADE COMMISSION
AGENCY OR DEPT.

489

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Henry D. Stringer
   A. TECHNICAL DIRECTOR: Mrs. Arlene S. Rosenberg

3. LOCATION: A. Washington (Nearest City) B. 0 (County) C. D. C. (State)

4. P. O. ADDRESS: Textiles and Furs Laboratory, Federal Trade Commission
   6th Street and Pennsylvania Avenue, N. W.
   A. Washington (City) B. D. C. (State) C. 20580 (Zip Code) D. (202) 393-6800 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 2
   B. ALL OTHER PERSONNEL (Total): 1

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 30,000
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Textiles and Furs Laboratory provides tests and analyses on physical exhibits being investigated under the Wool Products Labeling Act, Textile Fiber Products Identification Act, Fur Products Labeling Act, and Flammable Fabrics Act.

Wool and textile products are examined qualitatively and quantitatively to determine the percentages of the component fibers. Methods involve microscopic characteristics and chemical solubilities. (11-05, Fibers and Textiles - Qualitative and Quantitative fiber content analysis of wool and textile products. Includes flammability testing for textiles, wool, wood and paper products; (11-12, Wood and Paper Products - Physical testing for flammability.)

Fur hairs are analyzed for the presence of specific chemical constituents contained in a dye or bleach which are not present in natural fur. A recent development in fur testing has been the detection of parts per million of iron or copper which may be used to darken fur hairs. (11-03, Coatings, Colorants and Finishes - Determination of dye in fur hairs; 11-06, Metallurgy and Metallography - Quantitative identification of metallic fibers in textile products.)

Wool and fur products are examined qualitatively and quantitatively to determine fiber content, (11-07, Materials, Miscellaneous; 11-10, Materials, Rubbers, identification of elastomer fibers in textile products.)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

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490 8. MAJOR EQUIPMENT:

For the routine microscopic and chemical analysis of textile, wool, and fur products, the laboratory has a limited amount of testing equipment with the following special items:

Atomic Absorption Spectrophotometer, Perkin-Elmer
Model 403
equipped with iron and copper hollow cathode lamps

Flammable Fabrics Tester, manufactured by U. S. Testing Co., Inc., Model 215

9. COMMENT AND PUBLICATION REFERENCES:

NONE

10. DATE OF REPORT: October 1969

Department of Health, Education, and Welfare

APPALACHIAN LABORATORY
INSTALLATION

HEW (CPEHS)
AGENCY OR DEPT.

493

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Dr. Keith W. Morgan A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Morgantown (Nearest City) B. Monongahela (County) C. West Virginia (State)

4. P. O. ADDRESS: Appalachian Lab. for Occupational and Respiratory Diseases, BOSH,CPEHS
   A. P.O. Box 4292, Morgantown (City) B. W. Va. (State) C. 26503 (Zip Code) D. 304-293-3694 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 16
   B. ALL OTHER PERSONNEL (Total): 17

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 560,000
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The primary emphasis of this laboratory is the study of occupational respiratory disease, particularly coal miners' pneumoconiosis.

The laboratory plans, develops and conducts a program of clinical and laboratory research on coal miners' pneumoconiosis, develops diagnostic tests and procedures to be used in establishing guides or standards for determing the prevalence of occupational respiratory disease, and participates in the joint PHS-US Bureau of Mines medical-environmental study of miners to determine the adequacy of coal-dust safety standards. (06-10, 06-16).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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494 8. MAJOR EQUIPMENT:

This laboratory has equipment normal to a clinical and research facility involved in occupational health research.

9. COMMENT AND PUBLICATION REFERENCES:

This laboratory is a facility of the Bureau of Occupational Safety and Health, ECA.

Program information is contained in "A Look at the Bureau of Occupational Safety and Health," which is available from the laboratory.

10. DATE OF REPORT: November 1969

Arctic Health Research Center — INSTALLATION

HEW (CPEHS) — AGENCY OR DEPT.

495

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Mr. William J. Beck   A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Fairbanks (Nearest City)   B. NA (County)   C. Alaska (State)

4. P. O. ADDRESS: Arctic Health Research Center, BCEM, ECA, CPEHS
   A. College (City)   B. Alaska (State)   C. 99701 (Zip Code)   D. 907-479-2211 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 28
   B. ALL OTHER PERSONNEL (Total): 55

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 1,063,615
   B. EXTRAMURAL (Total): $ 2,905

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Arctic Health Research Center is the first established area ecology center of the Environmental Control Administration. As such, it conducts a complete program of scientific investigations, testing, demonstrations, and training on problems effecting human health in arctic and cold weather climate. Major fields include epidemiology, nutrition, and metabolic diseases; diseases of animals transmissible to man; environmental sanitation and engineering; entamology and physiology. (06-06, 06-19, 05-05, 13-02-Water supply, waste, and sanitary engineering).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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8. MAJOR EQUIPMENT:

This laboratory has equipment normal to a facility of this type.

9. COMMENT AND PUBLICATION REFERENCES:

This laboratory is part of the Bureau of Community Environmental Management, ECA.

The laboratory publishes a Quarterly Report, which is available from the laboratory.

10. DATE OF REPORT: November, 1969

Bureau of Radiological Health Laboratories
INSTALLATION

HEW (CPEHS)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION: Leased

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: John C. Villforth
A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Rockville (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: Bureau of Radiological Health, ECA, CPEHS, 12720 Twinbrook Pkwy.
A. Rockville (City) B. Maryland (State) C. 20852 (Zip Code) D. 301-496-8811 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969)
A. R&D PROFESSIONALS (Total): 84
B. ALL OTHER PERSONNEL (Total): 74

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 3,555,000
B. EXTRAMURAL (Total): $ 135,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Radiation Bio-effects Laboratory studies the biological effects of ionizing and non-ionizing radiation, including investigations in the areas of neurophysiology, pathology, metabolism, toxicology, dosimetry, epidemiology, and genetics, as they relate to radiological health. (06-18, 20-05, 20-06, 20-14).

The BRH X-ray Exposure Control Laboratory designs and carries through research and development projects to reduce X-ray exposure from medical, dental, and industrial X-ray equipment; tests and evaluates various techniques and equipment used with X-ray procedures; recommends changes in procedures and equipment aimed at reducing X-ray exposure; promotes methods and concepts not in general use which would reduce radiation exposure significantly (06-18, 20-08, 18-06).

The Electronic Products Laboratory plans and carries out design, development, testing and evaluation of instrumentation and methodology for the detection and measurement of electronic product radiation, and provides electronic product radiation calibration and dosimetry services to designated activities. (06-18, 20-05, 20-06, 20-14).

Laboratory resources are also used to investigate the modification caused by other environmental stresses of the biological effects produced by all types of electromagnetic and sonic radiation. (06-18, 20-05, 20-06, 20-14).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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8. MAJOR EQUIPMENT:

The laboratories have the equipment and facilities for mounting a research and development program involving multi-disciplinary approaches to problems of radiological health. Major equipment includes:

Irradiation facilities (x-y ultraviolet, microwave infrared).

X-ray sources with electron beam currents from a nanoampere to 50 milliamperes, and accelerating potentials from a few kV to 250 kV.

9. COMMENT AND PUBLICATION REFERENCES:

The Bureau publishes a periodical "The BRH Bulletin," which is available upon request.

The Bureau has three field laboratories, which carry out a large and diverse research and development program. These are:

Northeast Radiological Health Laboratory, Winchester, Massachusetts
Southeast Radiological Health Laboratory, Montgomery, Alabama
Southwestern Radiological Health Laboratory, Las Vegas, Nevada

The Bureau has two subsidiary laboratories in Cincinnati, Ohio. These are:

Radiological Engineering Laboratory
Radiological Health Laboratory

These are subsidiary organizations to the Bureau of Radiological Health.

10. DATE OF REPORT: November, 1969

BUREAU OF SCIENCE
INSTALLATION

HEW (CPEHS)
AGENCY OR DEPT

499

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Keith H. Lewis, Ph. D.
A. TECHNICAL DIRECTOR: Keith H. Lewis, Ph.D.

3. LOCATION: A. Washington (Nearest City), B. (County) C. D.C. (State)

4. P. O. ADDRESS: Bureau of Science, Food & Drug Admin., CPEHS, 200 C St., S.W.

A. Washington (City) B. D.C. (State) C. 20204 (Zip Code) D. 202-962-8011 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 347
B. ALL OTHER PERSONNEL (Total): 341

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 10,956,000
B. EXTRAMURAL (Total): $ 411,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Div. of Pharmaceutical Sciences: Conducts research on methods of trace drug detection (06-01), occurrence and measurement of toxic substances in drug products (07-04), develops criteria for drug standards and purity tests (07-03), and conducts research on methods of assaying insulin and antibiotics in drugs (06-01, 07-03, 07-04).

Div. of Colors and Cosmetics: Conducts research on the chemistry and reactions of colors and cosmetics; develops methods for their detection and analysis (07-04).

Div. of Food Chemistry and Technology: Conducts research on and develops analytical methods for hazardous substances in food; develops standards for identity, quality, and quantity for food products (07-03, 07-04, 07-05).

Div. of Nutrition: Conducts research on the nature and effects of nutritionally significant substances in foods and drugs; develops analytical and detection methods (06-01).

Div. of Pharmacology and Toxicology: Conducts research on the nature of pharmacologically and toxicologically significant substances in food and drugs and their effects on biological systems (06-15, 06-20).

Div. of Microbiology: Conducts research on the nature, extent, causes, and significance of microbial contaminants in foods and drugs; develops methods for detection and prevention of food poisoning, and for microbiological analysis of foods, drugs, and cosmetics (06-13).

Div. of Pesticides: Conducts research on the nature, behavior, and occurrence of pesticides and their degradation products in man and the environment and the hazards of acute and chronic exposure. Develops and evaluates methods for detection of pesticides and their degradation products in foods and feeds (06-01, 06-03, 06-20, 07-03, 07-04).

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
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8. MAJOR EQUIPMENT:

The Bureau of Science Laboratories maintain a variety of equipment normally found in research laboratories of these types. Special equipment includes:

- Small pilot food preparation, canning, and thermal processing plant.
- Nuclear magnetic resonance spectrometers.
- A "clean" room for examination of parenteral preparations for sterility.

9. COMMENT AND PUBLICATION REFERENCES:

The Food and Drug Administration has a variety of publications available from its Information Center, Federal Bldg. 8, Rm. 1812, 200 C St., Washington, D.C. 20204. FDA PAPERS, the official publication of FDA (10 issues per year) is available from the Superintendent of Documents, Government Printing Office ($6.00 per year).

In addition to the organizational laboratories listed on the preceding page, the Bureau of Science has several subsidiary research and development laboratories as follows:

National Center for Drug Analysis, St. Louis, Missouri
Milk and Food Laboratories, Cincinnati, Ohio
Toxicology Laboratory, Chamblee, Georgia
National Center for Microbiological Analysis, Minneapolis, Minnesota
Perrine Primate Laboratory, Perrine, Florida
National Center for Antibiotic and Insulin Analysis, Washington, D.C.

10. DATE OF REPORT: November 1969

Bureau of Water Hygiene Laboratory
INSTALLATION

HEW (CPEHS)
AGENCY OR DEPT.

501

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION: Leased

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Gordon G. Robeck
A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Cincinnati (Nearest City) B. Hamilton (County) C. Ohio (State)

4. P. O. ADDRESS: Bureau of Water Hygiene, ECA, CPEHS, 5555 Ridge Avenue
A. Cincinnati (City) B. Ohio (State) C. 45213 (Zip Code) D. 513-684-2200 x4201 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 23
B. ALL OTHER PERSONNEL (Total): 8

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 461,890
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (include COSATI Codes):

This laboratory is concerned primarily with research and development on water supply reservoir management, water quality deterioration in distribution systems, chemical analyses, and methodology for quantifying agents of public health importance in drinking and recreational waters. (08-08, 13-02)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES
Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

502 The laboratory is a completely instrumented analytical chemistry laboratory, with equipment and facilities normal to this type laboratory.

9. COMMENT AND PUBLICATION REFERENCES:

Information on program is available from the laboratory. An informational pamphlet is in preparation.

This laboratory is a facility of the Bureau of Water Hygiene, ECA.

10. DATE OF REPORT: November 1969

CHEMISTRY & PHYSICS LABORATORY
INSTALLATION

HEW (CPEHS)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Paul W. Spaite
   A. TECHNICAL DIRECTOR: Aubrey P. Altshuller

3. LOCATION: A. Cincinnati (Nearest City) B. Hamilton (County) C. Ohio (State)

4. P. O. ADDRESS: Chemistry & Physics Lab., National Air Pollution Control Admin.
4676 Columbia Parkway
   A. Cincinnati (City) B. Ohio (State) C. 45227 (Zip Code) D. 513-272-3312 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 37
   B. ALL OTHER PERSONNEL (Total): 23

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 1.3 million
   B. EXTRAMURAL (Total): $ 1.4 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research includes: (1) the physical and chemical characterization of aerosol constituents in urban atmospheres and from specific pollution sources, (2) studies of the mechanism and kinetics of particulate formation in the atmosphere; and (3) investigations of the extent and significance of interactions between particulates (07-04 Chemistry - Physical).

Performs research involving exploratory and applied studies for the development of physical methods and instruments, e.g., long-path and remote spectrophotometric techniques for the detection, identification and measurement of pollutants in the atmosphere (20-06 Physics - Optics; 07-04 Chemistry - Physical).

Develops and conducts research to elucidate nature and significance of reactions in in urban atmospheres and the fate of pollutants on a continental and global basis (07-04 Chemistry - Physical).

Develops and operates engineering facilities and participates in development of sampling techniques for determining composition of emissions from vehicular sources and related combustion systems (07-04 Chemistry - Physical).

Develops and conducts research to determine composition of emissions from vehicular and other combustion systems with emphasis on the relation to fuel and fuel additive composition (07-04 Chemistry - Physical).

Plans and conducts chemical research on the identification and determination of the organic components of particulate air pollutants, with emphasis on compounds or classes of compounds likely to have a physiologic impact on humans (07-03 Chemistry Organic).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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8. MAJOR EQUIPMENT:

The laboratory is equipped with facilities and instrumentation for the conduct of studies on vehicular exhaust chemistry; kinetics of photochemical reactions involving exhaust gases or synthetic gas mixtures; atmospheric aerosol characterization: aerosol kinetics; atmospheric optics and radiation; remote instrumentation development; delineation of physical and chemical properties of air pollutants; their reactions of formation and destruction; and means for their identification and detection. Special equipment includes:

Irradiation chambers in which smog-forming reactions can be carried out and studied under conditions of light, heat, and air movement simulating typical atmospheric situations.

Engine dynamometers

Microcoulometer for the electrochemical analyses of pollutant species at the nanogram level.

9. COMMENT AND PUBLICATION REFERENCES:

The Chemistry and Physics Laboratory operates in two locations in Cincinnati: 4676 Columbia Pkwy., and 3914 Virginia Ave.

Current information on NAPCA programs is available from the Government Printing Office in the Reports of the Secretary, DHEW, to the Congress: Progress in the Prevention and Control of Air Pollution: First Report, June 28, 1968; Second Report, March 4, 1969.

10. DATE OF REPORT: November 1969

ECONOMIC EFFECTS RESEARCH LABORATORY
INSTALLATION

HEW (CPEHS)
AGENCY OR DEPT.

505

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Paul Kenline

A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Raleigh (Nearest City) B. Wake (County) C. North Carolina (State)

4. P. O. ADDRESS: Economic Effects Research Laboratory, NAPCA, HEW, 1033 Wade Avenue

A. Raleigh (City) B. North Carolina (State) (Zip Code) D. 919-782-2470 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 30

B. ALL OTHER PERSONNEL (Total): 0*

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 0.8 million

B. EXTRAMURAL (Total): $ 1.3 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Explore and determine the quantitative relationships between air pollutants, singly or in combination, and economically important plants, animals and materials through laboratory and controlled environment research. (02-02 Agriculture; 06-01 Biochemistry; 06-06 Environmental Biology; 06-19 Stress Physiology).

To obtain baseline information on costs of controlling air pollution by some category across the nation in order to develop techniques for estimating control costs under a great variety of control strategies for present and future needs on regional and national bases. (05-03 Economics)

Develop and conduct cost-benefit analyses at the regional and national level comparing alternate control techniques and the costs thereof and the social and economic benefits derived from altering air quality, to provide economic criteria for guidance in establishing air quality and emission standards, and to review and revise national gross estimates of the cost of air pollution in terms of the cost of control and the benefits derived from control of said pollutants. (05-03 Economics)

To define the degree of risk in terms of physical, biological, economic, and social measures of population groups of people, plants, economic animals, and materials with respect to each of the major air pollutants and combinations thereof in order to provide quantitative information necessary to air quality criteria development and as input to benefit cost analyses. (02-02 Agriculture; 05-03 Economics; 06-06 Environmental Biology).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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8. MAJOR EQUIPMENT:

The only laboratory space available to Divisional personnel was for Agricultural research. The laboratory contains a wide assortment of laboratory type equipment and facilities for use in determining the effects of air pollutants on vegetation.,

No special type of instrumentation is available.

The laboratory is presently located in temporary quarters after being moved from Cincinnati to Raleigh.

9. COMMENT AND PUBLICATION REFERENCES:

There are no public documents which describe the installation's resources, programs, and facilities. Current information on NAPCA's general program is available from the Government Printing Office in the Reports of the Secretary, DHEW, to the Congress: Progress in the Prevention and Control of Air Pollution: First Report, June 28, 1968: Second Report, March 4, 1969.

* Administration and supporting services provided by other NAPCA units.

10. DATE OF REPORT: November, 1969

Gulf Coast Water Hygiene Laboratory
INSTALLATION

HEW (CPEHS)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR OPERATED

C. CONTRACTOR:

2. DIRECTOR: Richard J. Hammerstrom
A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Mobile (Nearest City) B. Mobile (County) C. Alabama (State)

4. P. O. ADDRESS: Bureau of Water Hygiene, Gulf Coast Water Hygiene Laboratory, ECA, CPEHS
A. P. O. Box 158 Dauphin Island (City) B. Alabama (State) C. 36528 (Zip Code) D. 205-861-2962 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 8
B. ALL OTHER PERSONNEL (Total): 11

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 254,240
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (include COSATI Codes):

This laboratory develops and provides technical data leading to the development of shellfish water quality criteria, for trace metals and pesticides, with particular consideration to the problems of the Gulf Coast area. (08-01, 08-08).

The laboratory conducts research on the microbiological, viral, and toxic metal aspects of the accumulation, purification, and depletion of contaminants by shellfish and the sanitary significance of pollution by non-human sources as they relate to shellfish water quality criteria. The Gulf Coast Laboratory is studying the bacteriological and viral aspects of estuarine water use, pesticide analysis, self-purification of oysters, and the marine toxins (08-01, 08-08, 06-06, 06-13).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

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8. MAJOR EQUIPMENT:

This laboratory has equipment normal to an analytical chemistry and biological laboratory. In addition, it has a wet laboratory of sea water, which allows research in vivo with shellfish and other marine flora and fauna.

9. COMMENT AND PUBLICATION REFERENCES:

Program information is available from the laboratory. There are no informational type publications at present.

This laboratory is a facility of the Bureau of Water Hygiene, ECA.

10. DATE OF REPORT: November, 1969

Health Effects Research Laboratory
INSTALLATION

HEW (CPEHS)
AGENCY OR DEPT.

509

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Vaun A. Newill
A. TECHNICAL DIRECTOR: Dr. Jerry F. Stara

3. LOCATION: A. Cincinnati (Nearest City) B. Hamilton (County) C. Ohio (State)

4. P O ADDRESS: Health Effects Research Laboratory, NAPCA, HEW, 1055 Laidlaw Ave.
A. Cincinnati (City) B. Ohio (State) C. 45237 (Zip Code) D. 513-871-1820 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 40
B. ALL OTHER PERSONNEL (Total): 70

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1.5 million
B. EXTRAMURAL (Total): $ .88 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Develops and conducts systematic biological research to detect and evaluate toxicologic effects of air pollutants and other atmospheric characteristics on experimental animals and their biologic systems (06-20 Biological & Medical Sciences - Toxicology)

Determines the mechanisms of effect for pollutants presenting a major hazard with the attention to the translation of such mechanisms into practical methods for field surveys and surveillance of human populations. (06-01 B & M Sciences - Biochemistry)

Conducts systematic exploratory and chronic exposure studies of air pollution to

(1) Determine primary evidence of toxic effects by means of alterations in pharmacological, clinical chemistry, and physiological responses. (06-01 Biological & Medical Sciences - Biochemistry)
(2) Determine alterations in biochemical composition and processes, as anabolic, catabolic pathways, enzymatic or hormonal activities; at organ, cellular and subcellular levels. (06-01 Biological & Medical Sciences - Biochemistry)
(3) Determine alterations in neurochemical, neurophysiologic, and psychologic responses of body functions such as electro-physiological responses, behavioral (normal and stressed) responses, with related neurochemical studies. (05-01 Behavioral and Social Sciences - Psychology (animal behavior)
(4) Detect the effects of air pollutants as interactants with other agents in the causation of pathologic states with emphasis concerning the influence of air pollutants as primary, secondary, or co-factors for the causation of or agumentation of carcinogenic or infectious states. (06-20 B & M Sciences - Toxicology)

06-15 B/M Sciences - Pharmacology; 06-03 B/M Sciences-Biology; 06-06 B/M Sciences - Environmental Biology; 04-01 Atmos. Sciences - Atmos. Physics; 09-02 Electronics & Elec. Eng. - Computers; 07-02 Chem. - Inorganic; 07-03 Chem. - Organic.

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

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8. MAJOR EQUIPMENT:

a. 82 animal inhalation exposure chambers (28-44 ft.^{3}; 12-100 ft.^{3}; 8-110 ft.^{3}; 4-17.5 ft.^{3}; 5-22.7 ft.^{3}; 25-11.4 ft.^{3}).
b. 6 atmospheric irradiation chambers (each 680 ft.^{3}).
c. Autoexhaust production facility including 2 Ford Falcon engines and one engine dynamometer unit.
d. A purification facility for dilution and animal colony quarters.
e. Radioisotope laboratory including liquid scintillation, electrometer system and auto-gamma spectrometer.
f. Spectrophotometers - multiple, phosphor, IR, fluorescence, atomic absorption, and time of flight mass.
g. Pollution monitoring equipment for SO_2, H_2SO_4 aerosol, NO, NO_2, CO_2, CO, hydrocarbons, particle sizing and counting, ozone.
h. Gas chromotograph and TLC capability.
i. Standard equipment for pathology, pulmonary and cardiovascular studies.
j. Physiological telemetry system.
k. Behavioral and neurophysiological (EEG) testing facility with process control computer.
l. Electronic calculator systems including keyboards and readers, typewriter and teletype terminals, and punched and magnetic tape readers.
m. Required support equipment for mechanical and electrical engineering needs.

9. COMMENT AND PUBLICATION REFERENCES:

Have capacity to perform varied types of inhalation toxicology research involving most gases or aerosols alone or in combination.

Descriptive laboratory publication references:

1. Hinners, R. G. Engineering the Chronic Exposure of Animals to Laboratory Produced Automobile Exhaust. APCA Jour., 12(11):527. Nov., 1962.
2. Hinners, R. G., Burkart, J. K. and Contner, G. L. Animal Exposure Chambers in Air Pollution Studies. Arch. Environ. Health, 13:609. Nov., 1966.
3. Hinners, R. G. Burkart, J. K. and Punte, C. L. Animal Inhalation Exposure Chambers. Arch. Environ. Health, 16:194. Feb., 1968.

The Health Effects Research Laboratory has one professional assigned to the University of Washington studying air borne transmission of infection.

10. DATE OF REPORT: November 1969.

Injury Control Research Laboratory
INSTALLATION

HEW (CPEHS)
AGENCY OR DEPT

511

1. TYPE OF FEDERAL GOVERNMENT ~~OWNED~~ Leased INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Robert K. McKelvey
A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Providence (Nearest City) B. Providence (County) C. R. I. (State)

4. P O ADDRESS: Injury Control Laboratory, BCEM, ECA, CPEHS, 235 Promenade Street,
A. Providence (City) B. Rhode Island (State) 02908 (Zip Code) D. 401-528-4556 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969): 10
A. R&D PROFESSIONALS (Total):
B. ALL OTHER PERSONNEL (Total): 2

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 271,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Injury Control Research Laboratory performs experimental research on the human factors associated with the causation of accidents. Its principal studies are designed to determine the human characteristics and conditions of performance which affect a person's ability to anticipate danger and prevent injury. The Laboratory's program includes analysis of the influence on human efficiency of personal fitness, drugs, alcohol, and other agents. It employs, in general, simulation systems to analyze behavior under conditions of temporary of chronic impairment and to develop and evaluate remedies for inadequate performance (05-05,05-08,06-19).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

512 8. MAJOR EQUIPMENT:

1. OCTV Automobile Driving Simulator
2. Direct Optical Automobile Driving Simulator
3. 12' x 12' x 8' Sensory and Environmental Test Chamber with control over temperature, pressure, and humidity, and with means for injecting known concentrations of odor-producing gases.

9. COMMENT AND PUBLICATION REFERENCES:

Information on this program is available from the laboratory.

This laboratory is a facility of the Bureau of Community Environmental Management, ECA.

10. DATE OF REPORT: November, 1969

MILK AND FOOD LABORATORIES
INSTALLATION

HEW (CPEHS)
AGENCY OR DEPT.

513

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: J. C. Olson, Jr., Ph.D.
   A. TECHNICAL DIRECTOR: J. E. Campbell, Ph.D.

3. LOCATION: A. Cincinnati (Nearest City) B. Hamilton (County) C. Ohio (State)

4. P. O. ADDRESS: HEW--Food & Drug Administration, Division of Microbiology
   1090 Tusculum Road
   A. /Cincinnati (City) B. Ohio (State) C. 45226 (Zip Code) D. 513 871-6331 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 30
   B. ALL OTHER PERSONNEL (Total): 20

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 800,000
   B. EXTRAMURAL (Total): $ --

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Develops procedures for protecting foods including milk and other dairy products against contamination; evaluates and improves concepts and methods used in food protection. Conducts research into the technological and engineering aspects of food processing procedures designed to eliminate contamination that may be responsible for food-borne illness.

(06-13 Microbiology; 06-01 Biochemistry)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

514 8. MAJOR EQUIPMENT:

The laboratory has the expected equipment of a microbiology and chemistry unit.

Special equipment:

a. Hitachi electron microscope

b. a small pilot plant equipped for research studies on thermal processing of fluids

9. COMMENT AND PUBLICATION REFERENCES:

This laboratory is a subsidiary of the Bureau of Science, FDA.

10. DATE OF REPORT: November, 1969

MOTOR VEHICLE POLLUTION CONTROL LABORATORY
INSTALLATION

HEW (CPEHS)
AGENCY OR DEPT

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Kenneth D. Mills, Acting
A. TECHNICAL DIRECTOR: Kenneth D. Mills

3. LOCATION: A. Ypsilanti (Nearest City) B. Washtenaw (County) C. Michigan (State)

4. P. O. ADDRESS: Motor Vehicle Pollution Control Laboratory, National Air Pollution Control Administration, Main Terminal, Willow Run Airport
A. Ypsilanti (City) B. Michigan (State) C. 48197 (Zip Code) D. 313-482-0160 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969)
A. R&D PROFESSIONALS (Total): 23
B. ALL OTHER PERSONNEL (Total): 50

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 2.1 million
B. EXTRAMURAL (Total): $ 1.2 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Testing of emissions from motor vehicles including internal and external combustion type engines for combustion products relating to air pollution. (21.02)

Driveability evaluations of motor vehicles to determine effects of emission controls on engine performance and design. (13.06)

Development of procedures for testing vehicles to determine emission of pollutants and regulatory processes. (21.02)

Design and evaluation of new test and analytical equipment. (14.02)

Analysis of effects of maintenance on emissions. (13.06)

A. ADDITIONAL COSATI CODES:
21.05 21.07 21.01

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES
Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

516 8. MAJOR EQUIPMENT:

Clayton water brake dynamometers (LD)

Automotive Exhaust Gas Analysis System including on-line data analysis.

Electric chassis dynamometer (LD and HD)

Eddy current engine dynamometer (LD)

9. COMMENT AND PUBLICATION REFERENCES:

10. DATE OF REPORT: 11/10/69

NATIONAL CENTER FOR ANTIBIOTIC AND INSULIN ANALYSIS — INSTALLATION

HEW (CPEHS) — AGENCY OR DEPT

517

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Daniel Banes, Ph.D.

A. TECHNICAL DIRECTOR: William W. Wright, Ph.D.

3. LOCATION A. Washington, (Nearest City) B. (County) C. D.C. (State)

4. P. O. ADDRESS: Food and Drug Administration, CPEHS
200 "C" Street, S. W.

A. Washington (City) B. D.C. (State) C. 20204 (Zip Code) D. (202) 962-4050 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969)

A. R&D PROFESSIONALS (Total): 11

B. ALL OTHER PERSONNEL (Total): 100

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 2,000,000

B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The primary function of this unit is the testing of antibiotic and insulin samples for the purpose of certifying as to their identity, purity, and potency. In addition, samples collected by field offices in planned surveillance programs or in regulatory operations, or samples submitted by other agencies such as DOD and VA are also examined. Research is directed toward the development of new methods for the rapid and accurate analysis of large numbers of drugs containing antibiotics and insulin. These methods must be applicable to the analysis of single dosage entities and to the analysis of antibiotic residues in tissues, body fluids, and edible substances. (06-01: Biochemistry, 06-13: Microbiology, 07-03: Organic Chemistry, 07-04: Physical Chemistry).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

518 8. MAJOR EQUIPMENT:

Equipment found in this laboratory is of the type generally found in a laboratory using the techniques indicated.

9. COMMENT AND PUBLICATION REFERENCES:

This laboratory is a subsidiary of the Bureau of Science, FDA.

10. DATE OF REPORT: November 1969

NATIONAL CENTER FOR DRUG ANALYSIS — INSTALLATION

HEW (CPEHS) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Keith H. Lewis, Ph.D.
   A. TECHNICAL DIRECTOR: Daniel Banes, Ph.D.

3. LOCATION: A. St. Louis (Nearest City) B. St. Louis (County) C. Missouri (State)

4. P. O. ADDRESS: Food and Drug Administration, CPEHS, PHS
   U. S. Courthouse and Custom House, 1114 Market Street
   A. St. Louis (City) B. Missouri (State) C. 63101 (Zip Code) D. 314-622-4135 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 10
   B. ALL OTHER PERSONNEL (Total): 35

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 720,000
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The primary function of this installation is to test large numbers of drug samples obtained in planned surveillance programs or samples submitted for examination by FDA District offices or other agencies such as the Department of Justice, Department of Defense and Veterans Administration.

Research is centered around the development of new methods for the rapid and accurate analysis of large numbers of drug samples. This includes methods applicable to minute quantities of drugs for the analysis of single dosage entities and the development of new methods for the examination of individual drugs which present analytical problems in accepted procedures (07-03 and 07-04: Chemistry)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

520 8. MAJOR EQUIPMENT:

Equipment includes the usual variety and range of instruments available to an analytical laboratory of this type, plus a Technicon autoanalyzer used in sample analysis work.

9. COMMENT AND PUBLICATION REFERENCES:

This Laboratory is a subsidiary of the Bureau of Science, FDA.

10. DATE OF REPORT: November, 1969

NATIONAL CENTER FOR MICROBIOLOGICAL ANALYSIS — INSTALLATION

HEW (CPEHS) — AGENCY OR DEPT

521

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: **J. C. Olson, Jr., Ph.D.** A. TECHNICAL DIRECTOR: **H. V. Leininger**

3. LOCATION: A. **Minneapolis** (Nearest City) B. **Hennepin** (County) C. **Minnesota** (State)

4. P. O. ADDRESS: **DHEW--Food and Drug Administration, Nat'l Center for Microbiological Analysis (MIN-NC), 240 Hennepin Avenue**

A. **Minneapolis** (City) B. **Minnesota** (State) C. **55401** (Zip Code) D. **612 725-2121** (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 8

B. ALL OTHER PERSONNEL (Total): 5

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 200,000

B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Tests large numbers of food, drug, and cosmetic samples obtained in planned regulatory and surveillance programs - involves the detection and identification of pathogenic and nonpathogenic microorganisms and microbial toxins. (06-13 Microbiology)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

522 8. MAJOR EQUIPMENT:

The laboratory has the items normally found in a microbiology laboratory.

9. COMMENT AND PUBLICATION REFERENCES:

This laboratory is a subsidiary of the Bureau of Science, FDA.

10. DATE OF REPORT: November, 1969

Northeast Radiological Health Laboratory — INSTALLATION

HEW (CPEHS) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Morgan S. Seal
   A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Winchester (Nearest City) B. Middlesex (County) C. Mass. (State)

4. P. O. ADDRESS: Northeast Radiological Health Laboratory, BRH, ECA, CPEHS,
   A. 109 Holton St. Winchester (City) B. Mass (State) C. 01890 (Zip Code) D. 617-729-5700 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969)
   A. R&D PROFESSIONALS (Total): 33
   B. ALL OTHER PERSONNEL (Total): 41

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 980,700
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

1. Surveillance of radioactivity in the environment
2. Research on the effects of radioactivity on man
3. Research on the effects of non-ionizing radiation (microwaves) & of non-ionizing radiation usages
4. Studies concerning the impact of nuclear facilities on the environment
5. Training activities in both ionizing and non-ionizing radiation
6. Analytical Quality Control Services
7. Internal radiation dosimetry

(06-18 Biological and Medical Sciences - Radiobiology)
(18-04 Nuclear Science and Technology - Nuclear Instrumentation)
(18-05 Nuclear Science and Technology - Nuclear Power Plants - control devices)
(18-08 Nuclear Science and Technology - Radioactivity)
(18-10 Nuclear Science and Technology - Reactor Materials)
(20-14 Physics - Wave Propagation)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

524 8. MAJOR EQUIPMENT:

The laboratory is equipped to assess most forms of environmental radiation, and has standard instruments for analytical chemistry. Major equipment includes a whole body counter and microwave generating equipment for special studies.

9. COMMENT AND PUBLICATION REFERENCES:

This laboratory is a facility of the Bureau of Radiological Health, ECA.

Program information is contained in the Annual Report of the Laboratory, which is available from the Laboratory.

10. DATE OF REPORT: November, 1969

Northeast Water Hygiene Laboratory
INSTALLATION

HEW (CPEHS)
AGENCY OR DEPT.

525

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Dr. Benjiman H. Pringle A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Newport (Nearest City) B. Washington (County) C. Rhode Island (State)

4. P. O. ADDRESS Bureau of Water Hygiene, Northeast Water Hygiene Laboratory, ECA, CPEHS
A. South Ferry Road, Narragansett (City) B. Rh. Island (State) C. 02820 (Zip Code) D. 401-789-7711 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 14
B. ALL OTHER PERSONNEL (Total): 20

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 494,514
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

This laboratory develops technical data leading to the development of shellfish growing water quality criteria for trace metals and pesticides, with special consideration to the problems of the northeastern part of the U. S. coast. (08-01, 08-08).

This laboratory conducts research on the microbiological, viral, and toxic metal aspects of accumulation, purification, and depletion of contaminants by shellfish, and the sanitary significance of pollution of non-human sources as they relate to shellfish water quality criteria. At the Northeast Laboratory, research in heavy metals analysis, marine toxins, and the bacteriological and viral aspects of estuarine waters is underway (08-01, 08-08, 06-06, 06-13).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

526 8. MAJOR EQUIPMENT:

This laboratory has equipment normal to an analytical chemistry and biological laboratory. In addition, it has a wet laboratory of sea water which allows in vivo research with shellfish and other marine flora and fauna.

9. COMMENT AND PUBLICATION REFERENCES:

Information on program is available from the laboratory. There are no informational type publications at present.

This laboratory is a facility of the Bureau of Water Hygiene, ECA.

10. DATE OF REPORT: November, 1969

Northwest Water Hygiene Laboratory
INSTALLATION

HEW (CPEHS)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION: Leased

A. R&D LABORATORY

(1) ☒ GOVERNMENT-OPERATED

(2) ☐ FFRDC

(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION

(1) ☐ GOVERNMENT-OPERATED

(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: John C. Hoff

A. TECHNICAL DIRECTOR: Same

3. LOCATION A. Tacoma (Nearest City) B. Mason (County) C. Washington (State)

4. P. O. ADDRESS: Bureau of Water Hygiene, Northwest Water Hygiene Laboratory, ECA, CPEHS

A. Route 4, Gig Harbor (City) B. Washington (State) C. 98335 (Zip Code) D. 206-857-2146 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 6

B. ALL OTHER PERSONNEL (Total): 4

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 120,750

B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The laboratory develops and provides technical data leading to the development of shellfish growing water quality criteria for pesticides and trace metals. (08-01, 08-08)

The laboratory conducts research on the microbiological, viral, and toxic metal aspects of accumulation, purification, and depletion of contaminants by shellfish, and the sanitary significance of pollution by non-human sources as they relate to shellfish water quality criteria. The laboratory also investigates indicator organisms of sanitary significance, vibrio parahemolyticus in estuaries, and salmonella detection (06-06, 06-13).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

This is a general chemistry and biological laboratory. The facility has a wet laboratory of sea water which allows in vivo research and other marine flora and fauna.

9. COMMENT AND PUBLICATION REFERENCES:

General information is available from the laboratory. There are no publications at present.

This laboratory is a facility of the Bureau of Water Hygiene, ECA.

10. DATE OF REPORT: November, 1969

Occupational Health Laboratory
INSTALLATION

HEW (CPEHS)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION: Leased

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. M. M. Key
A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Cincinnati (Nearest City) B. Hamilton (County) C. Ohio (State)

4. P. O. ADDRESS: Occupational Health Laboratory, BOSH, ECA, CPEHS 1014 Broadway,
A. Cincinnati (City) B. Ohio (State) C. 45213 (Zip Code) D. 513-684-2618 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 70
B. ALL OTHER PERSONNEL (Total): 86

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 2,679,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The primary focus of this laboratory is occupational health. Research and Development activities include:

Development of criteria for standards for the control of chemical, biological, and physical hazards to the health and safety of the working population; development of standard instrumentation and methodology for control of such hazards.

Studies and evaluates the physiological responses of workers to stresses and the capacity of workers to withstand stresses.

Develops and evaluates engineering methods and instrumentation for occupational hazard control.

Evaluates the toxicity, health and safety hazards of industrial substances, processes and agents.

Conducts large scale studies of occupational diseases and stresses, including:

National Noise Study, a research project to identify the effects of noise on hearing, productivity, and well-being, and to develop control measures for alleviating noise problems in the work and community environment; also to review aspects of human response to sonic boom.

Beryllium Study of major industrial plants to determine the extent of beryllium disease, to identify factors leading to its development, to determine safe exposure levels to beryllium and its compounds, and to establish recommendations for engineering control methods.

Asbestos Study to establish safe working exposure levels for workers exposed occupationally to asbestos.

~~A. ADDITIONAL COSATI CODES:~~

(06-10, 06-20)

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

530 8. MAJOR EQUIPMENT:

This laboratory is equipped for toxicological analysis, dust measurement, and other laboratory activities associated with research in environmental health.

9. COMMENT AND PUBLICATION REFERENCES:

This laboratory is a facility of the Bureau of Occupational Safety and Health, ECA.

Program information is contained in "A Look at the Bureau of Occupational Safety and Health", which is available from the Laboratory.

10. DATE OF REPORT: November, 1969

Perrine Primate Laboratory
INSTALLATION

HEW (CPEHS)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Henry Fischbach, Ph. D.
A. TECHNICAL DIRECTOR: William Durham, Ph. D.

3. LOCATION: A. Miami (Nearest City) B. Fulton (County) C. Florida (State)

4. P. O. ADDRESS: Perrine Primate Branch, Food and Drug Administration, CPEHS, PHS, DHEW
A. P. O. Box 490 Perrine (City) B. Florida (State) C. 35156 (Zip Code) D. (305) 250-2251 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1968):
A. R&D PROFESSIONALS (Total): 33
B. ALL OTHER PERSONNEL (Total): 33

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,255,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Originates and conducts research on pharmacologically and toxicologically active substances occurring in man and his environment; specifically:

1. Conducts controlled laboratory animal experiments including primate research to determine hazards from acute and chronic exposure to pesticides and to develop improved methods for diagnosis and treatment of pesticide poisoning in man (06-20, 06-03, 06-10).

2. Conducts clinical investigations of workers dealing occupationally with pesticides (06-05).

3. Develops analytical equipment and methods for assessing by direct and indirect means the exposure level of man to pesticides (07-03).

4. Develops information on the metabolism of pesticides (06-01).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

This installation is equipped with the facilities and instrumentation required for operation of a primate (monkey) colony.

9. COMMENT AND PUBLICATION REFERENCES:

This laboratory is a subsidiary of the Bureau of Science, FDA.

10. DATE OF REPORT: November, 1969

PROCESS CONTROL ENGINEERING LABORATORY
INSTALLATION

HEW (CPEHS)
AGENCY OR DEPT

533

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Paul W. Spaite
A. TECHNICAL DIRECTOR: Paul W. Spaite

3. LOCATION: A. Cincinnati (Nearest City) B. Hamilton (County) C. Ohio (State)

1. P. O. ADDRESS: National Air Pollution Control Administration
Process Control Engineering Laboratory, 3914 Virginia Avenue
A. Cincinnati (City) B. Ohio (State) C. 45227 (Zip Code) D. 513/272-3425 (Telephone (Area Code & No.)

PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 20
B. ALL OTHER PERSONNEL (Total): 24

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ .7 million
B. EXTRAMURAL (Total): $ 8.3 million

MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Performs bench scale research related to the development of process for control of air pollution from industrial sources. Primary emphasis on control of inorganic gases such as the sulfur and nitrogen oxides resulting from fossil fuel combustion (07-04; 07-01 Chemistry - Physical - Chemical Engineering).

Conducts pilot plant studies on the factors affecting the efficiency and cost of control equipment for particulate and gaseous emissions from industrial sources. Major effort is directed towards particulate control utilizing fabric filtration and wet scrubbers (13-02 Mechanical, Industrial, Civil and Marine Engineering - Civil; 07-01 Chemistry - Chemical Engineering).

Conducts studies to determine the effect of design and operating characteristics on the emissions of air pollutants from commercially available combustion equipment (21-02 Propulsion and Fuels - Combustion and Ignition; 13-02 Mechanical, Industrial, Civil and Marine Engineering - Civil).

onducts studies to determine the effect of commercial additives on reducing emissions rom the combustion of fuel oils in stationary sources (21-02 Propulsion and Fuels - ombustion and Ignition; 13-02 Mechanical, Industrial, Civil and Marine Engineering - ivil).

evelops standard methods for the sampling and analyses of particulate and gaseous missions from industrial sources of air pollution (07-02 Chemistry - Inorganic).

valuates instrumentation for monitoring air pollutant emissions from industrial ources (07-02; 07-01 Chemistry - Inorganic - Chemical Engineering).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

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8. MAJOR EQUIPMENT:

The laboratory has specialized engineering equipment for studying the removal of gaseous and particulate matter contained in moving gas streams and the analytical instrumentation necessary to measure the quantities and properties of the particulate and gases.

Special Equipment:

1. Continuous, high temperature, gas-solid reactors. Temperature range ambient - 2200°F; controllable flow rate to 5 cfm; bed capacities to 25 grams.
2. Single bag, multiple bag and high temperature fabric filtration units instrumental for applied research studies.
3. Scrubber research pilot plant including gas preconditioning facilities for control of gas temperature and solids loadings in 3000 cfm inlet gas stream.
4. Particulate sampling, sizing and physical characteristics equipment. Includes Coulter Counter, Bahco, seiving elutriation, **forward** light scattering and optical microscopy for sizing; B.E.T. for surface area and mercury porisimetry.

9. COMMENT AND PUBLICATION REFERENCES:

Reports of the Secretary, DHEW, to Congress: Progress in the Prevention and Control of Air Pollution: First Report, June 28, 1968: Second Report, March 4,196

10. DATE OF REPORT: November 1969

Radiological Engineering Laboratory
INSTALLATION

HEW (CPEHS)
AGENCY OR DEPT.

535

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION: Leased

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: John C. Villforth
A. TECHNICAL DIRECTOR: Bernd Kahn

3. LOCATION: A. Cincinnati (Nearest City) B. Hamilton (County) C. Ohio (State)

4. P. O. ADDRESS: Bureau of Radiological Health, Radiological Engineering Laboratory, ECA, CPEHS
A. 5555 Ridge Avenue, Cincinnati (City) B. Ohio (State) C. 45213 (Zip Code) D. 513-684-3237 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 11
B. ALL OTHER PERSONNEL (Total): 5

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 269,700
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Plans and conducts field studies at operating nuclear reactors to investigate the mechanisms for production, release, and disposal of radionuclides in the environment under normal conditions of operation. Measures the cycling of radionuclides through the environment to determine transfer coefficients and effects of chemical state. Develops and tests radiation detection equipment to identify and quantify radionuclides discharged from nuclear reactors. Conducts studies of the effects of the dispersal patterns and transmission media on radionuclide contamination of the environment. (06-18, 18-03-peaceful applications, 18-04, 18-05-control devices, 18-08, 18-09-review of designs).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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536 8. MAJOR EQUIPMENT:

This facility has equipment normal for a laboratory investigating radioactivity in the environment.

9. COMMENT AND PUBLICATION REFERENCES:

Information on program is available from the laboratory. No informational publications are available at present.

This facility is a subsidiary of the Bureau of Radiological Health.

10. DATE OF REPORT: November, 1969

RADIOLOGICAL HEALTH LABORATORY
INSTALLATION

HEW (CPEHS)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION: Leased

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: John C. Villforth
A. TECHNICAL DIRECTOR: Henry N. Wellman, M. D.

3. LOCATION: A. Cincinnati (Nearest City) B. Hamilton (County) C. Ohio (State)

4. P. O. ADDRESS: Bureau of Radiological Health Nuclear Medicine Laboratory, ECA, CPEHS, Cincinnati General Hospital
A. Cincinnati (City) B. Ohio (State) C. 45229 (Zip Code) D. 513-684-3234 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 8
B. ALL OTHER PERSONNEL (Total): 2

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 175,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Plans and conducts a program of research and development to promote the efficient use of radiation in nuclear medicine. Assesses radiation doses received from radiopharmaceuticals. Develops, evaluates, and promotes clinical procedures, instrumentation, techniques, and radiopharmaceuticals for improved diagnosis and dose reduction. Investigates the kinetics of radiopharmaceuticals in humans to establish radiation dose parameters. (06-18, 18-02).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

This laboratory is located at the Cincinnati General Hospital and obtains use of their normal facilities. Special equipment includes:

A whole body counter
Hanger Gamma camera

9. COMMENT AND PUBLICATION REFERENCES:

Information on this program is available from the Director, Bureau of Radiological Health or from the facility in Cincinnati. No informational type publications are available.

This facility is a subsidiary of the Bureau of Radiological Health, ECA.

10. DATE OF REPORT: November, 1969

Solid Wastes Laboratory
INSTALLATION

HEW (CPEHS)
AGENCY OR DEPT.

539

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION: (leased)

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Andrew W. Breidenbach
A. TECHNICAL DIRECTOR: Same

3. LOCATION A. Cincinnati (Nearest City) B. Hamilton (County) C. Ohio (State)

4. P. O. ADDRESS: Bureau of Solid Wastes Management, ECA, PHS, 5555 Ridge Avenue
A. Cincinnati (City) B. Ohio (State) C. 45213 (Zip Code) D. 513-684-4320 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 39
B. ALL OTHER PERSONNEL (Total): 13

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 887,000
B. EXTRAMURAL (Total): $ 847,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Plans, conducts, and evaluates research and development concerned with solid wastes systems and system requirements, and new and improved methods of managing and reducing the generation of solid wastes. Plans and conducts municipal-scale projects to encourage the application of improved techniques and equipment for solid wastes management. Develops and applies operations research techniques to the management of solid wastes systems; plans, conducts and evaluates research in the socio-economic sciences and their relationship to solid waste management systems. (06-01, 07-03, 13-02)

The laboratory has two field stations:

Cincinnati, Ohio: A pilot plant for studying methods of solid wastes handling and a small sanitary landfill are located on a 15-acre tract at Cincinnati. There are laboratory facilities on-site for the conduct of research and development projects. (06-01, 07-03, 13-02)
Johnson City, Tenn.: The joint PHS-TVA Composting Project with a full-scale windrow composting plant for a city of 34,000 functions as a demonstration, research, and development facility. The public health aspects of composting are studied in on-site laboratories. TVA operates the plant and has the responsibility for study of utilization and marketing of the product. (06-01, 07-03, 13-02)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Facilities are conventional research and development laboratories designed around requirements of scientific and engineering research as applied to solid wastes management. Special equipment in the form of facilities:
Pilot-scale sanitary landfill.

9. COMMENT AND PUBLICATION REFERENCES:

The Bureau of Solid Wastes Management has two field stations: Johnson City, Tennessee composting plant, and Cincinnati, Ohio pilot-scale sanitary landfill and solid waste handling facilities.

Publications: "Solid Waste Management: The Federal Role", available from the laboratory.

10. DATE OF REPORT: November, 1969

SOLID WASTES LABORATORY: FIELD STATION
INSTALLATION

HEW (CPEHS)
AGENCY OR DEPT

1. TYPE OF FEDERAL GOVERNMENT-~~OWNED~~ LEASED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Gordon E. Stone
   A. TECHNICAL DIRECTOR: Gordon E. Stone

3. LOCATION: A. Johnson City (Nearest City) B. Washington (County) C. Tennessee (State)

4. P. O. ADDRESS: Solid Wastes Laboratory, Bureau of Solid Wastes Management, RFD #4
   A. Johnson City (City) B. Tennessee (State) C. 37601 (Zip Code) D. 615-477-7351 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 4
   B. ALL OTHER PERSONNEL (Total): 1

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 80,000
   B. EXTRAMURAL (Total): $ 267,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Composting Project, with its full scale windrow composting plant for a city of 34,000, functions as a demonstration, research, and development facility. The agency, with a professional staff and laboratory facilities, is studying the public health aspects of composting. *

(13-02 Civil Engineering - Waste Disposal)
(06-01 Biochemistry)
(07-03 Organic Chemistry)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Conventional analytical chemistry and microbiological laboratory equipment.

9. COMMENT AND PUBLICATION REFERENCES:

This facility is a field station of the Bureau of Solid Wastes Management laboratory in Cincinnati.

Publications covering the program are available from the parent laboratory; 5555 Ridge Avenue, Cincinnati, Ohio 45213.

* TVA operates the plant and has the responsibility for the study of utilization and the marketing of the product.

10. DATE OF REPORT:

SOLID WASTES PILOT HANDLING PLANT — INSTALLATION

HEW (CPEHS) — AGENCY OR DEPT.

543

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Andrew W. Breidenbach
A. TECHNICAL DIRECTOR: Mr. Boyd T. Riley

3. LOCATION: A. Cincinnati (Nearest City) B. Hamilton (County) C. Ohio (State)

4. P. O. ADDRESS: Bureau of Solid Wastes Mgmt., ECA 5555 Ridge Avenue
A. Cincinnati (City) B. Ohio (State) C. 45213 (Zip Code) D. 513-684-4320 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 19
B. ALL OTHER PERSONNEL (Total): 3

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 550,000
B. EXTRAMURAL (Total): $ -

. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

This facility is a pilot plant for studying methods of solid wastes handling and disposal. There are laboratory facilities on-site for the conduct of research and development projects, and a small sanitary landfill, all located on a 15-acre tract at Cincinnati.

(06-01 Biochemistry)
(07-03 Organic Chemistry)
(13-02 Civil Engineering - Waste Disposal)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Major equipment includes pilot-scale:
- sanitary landfill
- incinerator
- Municipal garbage grinder
- Hammer mill for reducing refuse

9. COMMENT AND PUBLICATION REFERENCES:

This facility is a field station of the Bureau of Solid Wastes Mgmt., Cincinnati, Ohio. Information on program is available from the parent laboratory, 5555 Ridge Avenue, Cincinnati, Ohio 45213.

10. DATE OF REPORT:

Southeast Radiological Health Laboratory
INSTALLATION

DHEW (CPEHS)
AGENCY OR DEPT.

545

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) XX GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Charles Porter (Acting) A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Montgomery (Nearest City) B. Montgomery (County) C. Alabama (State)

4. P. O. ADDRESS: Southeast Radiological Health Laboratory, BRH, ECA, CPEHS,
A. P.O. Box 61 Montgomery (City) B. Alabama (State) C. 36101 (Zip Code) D. 205-263-7446 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 30
B. ALL OTHER PERSONNEL (Total): 47

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 931,500
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

A. The laboratory provides technical consultation, short course training and other related activities associated with Pl 90-602 to the Southeast states and local health programs in their radiological health programs. The laboratory conducts research and development programs designed to reduce the exposure of man to ionizing and non-ionizing radiation. Major programs include:

a. Methodology research and development
b. Conduct of electronic product radiation control programs to support PL 90-602.
c. Instrumentation research and development
d. Conduct of integrated studies of factors influencing radionuclide transport in food chains so as to provide information required to initiate protective measures.
e. Development of reliable technical leak-testing of sealed sources containing Radium 226.
f. Conduct of research on the cytogenetic effects of microwave radiation of Chinese hamsters.
g. Monitoring of specific resources, particularily nuclear facilities, developing methodology to improve the system.

(06-18 Biological and Medical Sciences - Radiobiology)
(18-04 Nuclear Science and Technology - Nuclear Instrumentations)
(18-05 Nuclear Science and Technology - Nuclear Power Plants - control devices)
(18-08 Nuclear Science and Technology - Radioactivity)
(18-10 Nuclear Science and Technology - Reactor Materials)

A. ADDITIONAL COSATI CODES: (20-14 Physics - Wave Propagation)

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

This laboratory has equipment normally associated with radiological health laboratories involved in both research and development and analytical surveillanle. This equipment has capabilities for alpha, beta, and gamma detection.

An item of major equipment at the laboratory is the Higgins continuous ion-exchange contactor for removal of radionuclides from fresh milk. This is a unique unit, currently on stand-by.

9. COMMENT AND PUBLICATION REFERENCES:

This Laboratory is a facility of the Bureau of Radiological Health, ECA.

Program information is contained in the Annual Report of the Laboratory, which is available from the Laboratory.

10. DATE OF REPORT: November, 1969

Southwest Radiological Health Lab.
INSTALLATION

HEW, (CPEHS)
AGENCY OR DEPT

1. TYPE OF FEDERAL GOVERNMENT-~~OWNED~~ Leased INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: M. W. Carter, PhD   A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Las Vegas (Nearest City)   B. Clark (County)   C. Nevada (State)

4. P. O. ADDRESS: Southwestern Radiological Health Laboratory, BHR, ECA, CPEHS,
   A. P. O. Box 15027 Las Vegas (City)   B. Nevada (State)   C. 89114 (Zip Code)   D. 702-736-2969 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   - A. R&D PROFESSIONALS (Total): 30
   - B. ALL OTHER PERSONNEL (Total): 193

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   - A. INTRAMURAL (Total): $ 3,472,800
   - B. EXTRAMURAL (Total): $ 0

MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The primary research and development activities of this laboratory are:

to determine effects of radiation from various sources including natural-occurring and that resulting from nuclear device testing, nuclear reactor operations, and electronic products (both ionizing and non-ionizing radiation); to study the mechanisms and biological effects involved in the transport of significant radionuclides in the environment to man and to determine exposure/dose characteristics in terms of varying environmental conditions.

(06-18 Biological and Medical Sciences - Radiobiology)
(18-03 Nuclear Science and Technology - Nuclear Explosions - peaceful applications)
(18-04 Nuclear Science and Technology - Nuclear Instrumentation)
(18-05 Nuclear Science and Technology - Nuclear Power Plants - control devices)
(18-08 Nuclear Science and Technology - Radioactivity)
(18-10 Nuclear Science and Technology - Reactor Materials)
(20-14 Physics - Wave Propagation)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

[redacted]

SFL 1

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8. MAJOR EQUIPMENT:

This laboratory has a wide variety of radiation detection equipment, suitable for research and development and for analytical surveillance activities. Major items include:

Specially equipped aircraft with data acquisition systems for aerial sampling and monitoring of radioactivity.

Radiological and meteorological data gathering telemetry system including five slave and one master station.

Whole body counting system, with 11 x 4 sodium iodide crystal.

2100 sq. ft. greenhouse with special environmental growth chambers.

Wind tunnel with dual flow ranges of 5-30 mph and 100-150 mph.

Spirometer with 500 cubic foot volume and 200-250 ft./minute flow.

9. COMMENT AND PUBLICATION REFERENCES:

This laboratory is a facility of the Bureau of Radiological Health, ECA.

Program information is contained in the Laboratory's Annual Report, which is available from the Laboratory.

10. DATE OF REPORT: November, 1969

Toxicology Laboratory Branch **HEW** (CPEHS)

INSTALLATION AGENCY [illegible]

549

1. TYPE OF [illegible]
A. [illegible]
(1) ☒ [illegible]
(2) ☐ [illegible]
(3) ☐ [illegible]
B. [illegible]
(1) ☐ [illegible]
(2) ☐ [illegible]
C. [illegible]

2. DIR. C.O.: Henry Fischbach, Ph.D. A. TECHNICAL DIRECTOR: Mr. William Barthel

3. LOCATION: A. Atlanta (Nearest City) B. DeKalb (County) C. Georgia (State)

4. P. O. ADDRESS: Toxicology Laboratory Branch/4770 Buford Highway, **FDA, CPEHS, PHS**

A. Chamblee (City) B. Georgia (State) C. 30341 (Zip Code) D. (404) 633-5216 (Telephone (Area Code & No.)

5. PERSONNEL: [illegible]
A. [illegible] 15
B. ALL OTHER [illegible] 14

6. FUNDING [illegible] Dollar Obligation):
A. INTRAMURAL [illegible] $ 423,000
B. EXTRAMURAL [illegible] $ none

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Originates and conducts research on pharmacologically or toxicologically active substances occurring in man and his environment arising out of the use of pesticides. Such research is primarily aimed at the hazards from occupational exposure.

(1) Develops improved methods for the diagnosis of pesticide poisoning and actively participates in poisoning investigations. (07-03)

(2) Conducts clinical and chemical studies of occupational workers dealing with pesticides. (06-05, 06-01, 07-03)

(3) Conducts research on laboratory animals to determine the hazard of acute and chronic exposure and to develop improved techniques for screening candidate pesticides for potential hazard. (06-01, 06-03, 06-20)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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550 8. MAJOR EQUIPMENT:

This laboratory is equipped with the facilities and instruments generally found in an installation of this type.

9. COMMENT AND PUBLICATION REFERENCES:

This Laboratory is a subsidiary of the Bureau of Science, FDA.

10. DATE OF REPORT: November, 1969

URANIUM MINE RESEARCH FACILITY
INSTALLATION

HEW (CEPHS)
AGENCY OR DEPT.

551

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ CONTRACTOR-OPERATED

C. CONTRACTOR: New Mexico Health and Social Service Dept.

2. DIRECTOR: Aaron Bond
A. TECHNICAL DIRECTOR: Edward Kaufman

3. LOCATION A. Grants (Nearest City) B. Valencia (County) C. New Mexico (State)

4. P. O. ADDRESS: PERA Bldg. - P. O. Box 2348
A. Santa Fe (City) B. New Mexico (State) C. 87501 (Zip Code) D. (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 1
B. ALL OTHER PERSONNEL (Total): 0

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 16,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Serves as an underground facility for evaluating, testing and developing, monitoring and control techniques which may be used in limiting and estimating exposure of underground uranium miners to radon daughters. (08-09, Earth Sciences and Oceanography, Mining Engineering).

Drilling, blasting, slushing, and other everyday mining operations may be carried out in the new laboratory with controls that are difficult in operating mines.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES
Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Permanent ventilation; lighting, and safety and control equipment. Eight areas of the mine have been sealed off to provide special test chambers.

9. COMMENT AND PUBLICATION REFERENCES:

The facility is available on a no-cost basis to research teams from private industry, universities, and government agencies who wish to study the measure and control of uranium decay products.

Additional information can be obtained from:

ECA Bureau of Occupational Safety & Health
12720 Twinbrook Parkway
Rockville, Maryland 20852

10. DATE OF REPORT: March 12, 1970

VETERINARY RESEARCH LABORATORY
INSTALLATION

HEW (CPEHS)
AGENCY OR DEPT.

553

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: C. D. Van Houweling, DVM   A. TECHNICAL DIRECTOR: H. D. Mercer, DVM

3. LOCATION: A. Beltsville (Nearest City)   B. Prince Georges (County)   C. Maryland (State)

4. P. O. ADDRESS: Agricultural Research Center, Bureau of Veterinary Medicine, FDA,CPEHS

A. Beltsville (City)   B. Maryland (State)   C. 20705 (Zip Code)   D. (301) 474-4800 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 12
B. ALL OTHER PERSONNEL (Total): 15

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 550,000
B. EXTRAMURAL (Total): $ 53,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts acute and chronic toxicity studies in large domestic animals to evaluate the safety and efficacy of veterinary drugs intended for the prevention or treatment of animal diseases. Studies the therapeutic properties of specific products and substances and the experimental reproduction of various disease conditions. Directs research to develop methods for studying the effects of therapeutic agents and various disease conditions. Conducts experiments to develop information regarding food additive problems arising from the use of drugs in veterinary medicine.
(06-20 Biological and Medical Sciences-Toxicology)
(06-03 Biological and Medical Sciences-Biology)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

554 8. MAJOR EQUIPMENT:

This laboratory has equipment normally found in installations of this type, plus

Physiograph; Hewlett-Packard, 8-Channel Recording;

Atomic Spectrophotometer;

Numerous Gas Chromatographs;

Ultracentrifuges;

Histopathological Equipment.

9. COMMENT AND PUBLICATION REFERENCES:

10. DATE OF REPORT: November, 1969

Western Area Occupational Health Laboratory
INSTALLATION

DHEW (CPEHS)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT OWNED INSTALLATION: Leased
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: George C. Butler
A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Salt Lake City, (Nearest City) B. Salt Lake (County) C. Utah (State)

4. P. O. ADDRESS: Western Area Occupational Health Laboratory, BOSH, ECA, CPEHS, P.O.Box 8137
A. Salt Lake City (City) B. Utah (State) C. 84108 (Zip Code) D. 801-524-5287 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 10
B. ALL OTHER PERSONNEL (Total): - 20

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 455,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The major focus of this laboratory is the study of health hazards associated with uranium mining, including: studies of the physiological effects of exposure of uranium miners to radon and radon daughters, epidemiological studies to determine the incidence of lung cancer in uranium miners, environmental studies to determine safe working levels for alpha radiation exposure, evaluation of the effectiveness of protective and control measures. (06-10, 06-18, 18-04, 18-06).

To a lesser extent, this laboratory studies the health effects of other stressors such as noise, heat, humidity, and microwave radiation, and the harmful effects of new chemicals and other materials used in industry (06-10, 06-20).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

This laboratory is equipped for studies in occupational health. A major item of equipment opeeated by the Laboratory is a uranium mine in New Mexico which has been instrumented and completely equipped for research on radon and radon daughters in relation to the health of uranium miners. The mine, at Grants, New Mexico, is to be available on a no-cost basis to research teams from private industry, government, and universities who wish to study the control, measurement, or exposure of persons to uranium decay products.

9. COMMENT AND PUBLICATION REFERENCES:

This laboratory is a facility of the Bureau of Occupational Safety and Health, ECA.

Program information is contained in:

1. A Look at the Bureau of Occupational Safety and Health
2. Our Part in Occupational Health

Both of these booklets are available from the laboratory.

10. DATE OF REPORT: November, 1969

ADDICTION RESEARCH CENTER
INSTALLATION

HEW (HSMHA)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR OPERATED

C. CONTRACTOR:

2. DIRECTOR: William R. Martin, M.D.
A. TECHNICAL DIRECTOR: William R. Martin, M.D.

3. LOCATION: A. Lexington (Nearest City) B. Fayette (County) C. Kentucky (State)

4. P. O. ADDRESS: P.O. Box 2000

A. Lexington (City) B. Kentucky (State) C. 40507 (Zip Code) D. 606-252-2581 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 14
B. ALL OTHER PERSONNEL (Total): 38

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 751,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Addiction Research Center has laboratories of neuropharmacology, which has both neurochemistry and neuropharmacology units, pharmacology, drug metabolism and kinetics, experimental psychiatry, neuropharmacology, bio-chemical pharmacology, psychopharmacology and clinical psychology. These laboratories are supported by an administrative service, research service and biophysics unit.

In these areas of research the most exciting developments have been the study of partial agonists of the morphine type as well as the assessment of barbiturate-like drugs on post-rotational nystagmus. Studies have also been conducted with the end of showing that the LSD type of psychotogen exerts its effects through inner action with a tryptamine receptor and these studies are being pursued with the end of further delineating the location of tryltaminergic receptor responses in the cat spinal cord. The sleep laboratory has been conducting studies of the nature of the rapid eye movement homeostat and the effects of narcotics on rapid eye movement sleep.

Using self-injection techniques, studies are being conducted on the pattern of relapse to morphine in dogs. To further assess the addict's perception of the effects of drugs, extensive studies have been conducted in which patients have been asked to simulate drug effects and under such conditions their subjective responses have been sampled.

(06-01 Biological & Medical Sciences - Biochemistry) (06-03 Biological & Medical Sciences - Biology) (06-05 Biological & Medical Sciences - Clinical Medicine) (06-15 Biological & Medical Sciences - Pharmacology) (06-16 Biological & Medical Sciences - Physiology).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Laboratory contains a variety of chemical pharmacologicalm neurophysiological and psychological equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Projects described in NIMH Annual Reports.

10. DATE OF REPORT: October 1969

ANTIGEN LABORATORY UNIT
INSTALLATION

HEW (HSMHA)
AGENCY OR DEPT

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Lydia B. Edwards, M.D.   A. TECHNICAL DIRECTOR: Forrest W. Cross

3. LOCATION: A. Chamblee (Nearest City)   B. De Kalb (County)   C. Georgia (State)

4. P. O. ADDRESS: Antigen Laboratory Unit, TB Branch, National Communicable Disease Center

A. Atlanta (City)   B. Georgia (State)   C. 30333 (Zip Code)   D. 404-633-5246 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 2
B. ALL OTHER PERSONNEL (Total): 6

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 115,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Extraction of skin-test materials from crude culture filtrates, mostly from various strains and special mycobacteria.

Preparation and bottling of dilutions of skin-test materials for distribution and use by researchers in the USA and abroad.

06-15 Biological & Medical Science - Pharmacology - Antigens

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

560

8. MAJOR EQUIPMENT:

Semi-automated equipment for preparation of large numbers of vials of skin-test materials

9. COMMENT AND PUBLICATION REFERENCES:

None.

10. DATE OF REPORT: October 22, 1969

DIVISION OF SPECIAL MENTAL HEALTH RESEARCH
INSTALLATION

DHEW (HSMHA)
AGENCY OR DEPT

561

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Dr. G. C. Salmoiraghi
   A. TECHNICAL DIRECTOR: Dr. G. C. Salmoiraghi

3. LOCATION: A. Washington, D. C. (Nearest City) B. (County) C. (State)

4. P. O. ADDRESS: Div. of Special Mental Health Research
Saint Elizabeths Hospital, Wm. A. White Bldg., Rm. 565
   A. Washington, D. C. (City) B. (State) C. 20032 (Zip Code) D. 562-4000, Ext. 460 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1968):
   A. R&D PROFESSIONALS (Total): 47
   B. ALL OTHER PERSONNEL (Total): 28

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 1,432,000
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Plans and conducts a program of basic research, both clinical and nonclinical, in such specialized areas as psychopharmacology, neuropharmacology, memory, human behavior, and the biochemistry of learning.

These studies are directed at elucidating (1) the mechanisms of actions of various pharmacological agents and the affects of such agents on CNS activity; (2) the relationship of the metabolism of psychotropic drugs to the behavioral action caused by administration of such drugs; (3) the effect of conditioning on developing and modifying patterns of behavior; and (4) the role of biochemical and biophysical processes in the development and maintenance of learned behavior.

(06-01 Biological & Medical Sciences - Biochemistry, 06-05 Clinical Medicine, 06-15 Pharmacology, 06-16 Physiology; (05-10 Behavioral & Social Sciences - Psychology).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

The Division utilizes a variety of specialized equipment for such purposes as measuring and examining minute quantities of chemical agents and biological and histological material, measuring and recording physiological and mechanical reactions in subjects involved in operant conditioning and drug evaluation studies.

9. COMMENT AND PUBLICATION REFERENCES:

Projects described in NIMH Annual Reports.

10. DATE OF REPORT: October 1969

Epidemiology Program
INSTALLATION

HEW (HSMHA)
AGENCY OR DEPT.

563

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: David J. Sencer, M.D.
A. TECHNICAL DIRECTOR: A. D. Langmuir, M.D.

3. LOCATION A. Atlanta (Nearest City) B. KeKalb (County) C. Georgia (State)

4. P. O. ADDRESS: 1600 Clifton Road, NE
A. Atlanta (City) B. Georgia (State) C. 30333 (Zip Code) D. 404 633-3311 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 30
B. ALL OTHER PERSONNEL (Total): 50

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,200,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Epidemiology Program conducts field research on all communicable diseases of national importance in relation to its primary responsibility of providing epidemic services to the states and maintaining active surveillance of the communicable diseases. Primary areas of activity at present are field evaluation of vaccines against influenza, rubella, mumps, and rabies; the investigation and control of hospital acquired infections, viral encephalitis, neurotropic viral diseases including arthropodborne encephalitis; salmonellosis, shigellosis, and foodborne diseases; malaria and exotic parasitic diseases; leukemia and congenital malformations; the evaluation of family planning; and the epidemiological phases of the broad research program of the SEATO/Pakistan Cholera Research Laboratory.

06-16 Physiology
06-05 Clinical Medicine
06-13 Microbiology
06-06 Environmental Biology
06-01 Biochemistry
06-15 Pharmacology

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

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8. MAJOR EQUIPMENT:

Laboratory has a wide array of the usual equipment used in epidemiological and microbiological research.

9. COMMENT AND PUBLICATION REFERENCES:

None.

10. DATE OF REPORT: October 1969

Experimental Laboratory Unit
INSTALLATION

HEW (HSMHA)
AGENCY OR DEPT

565

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Gerard Wijsmuller
A. TECHNICAL DIRECTOR: Merle Selin

3. LOCATION: A. Chamblee (Nearest City) B. DeKalb (County) C. Georgia (State)

4. P. O. ADDRESS: Experimental Laboratory Unit, TB Branch NCDC
A. Atlanta (City) B. Georgia (State) C. 30333 (Zip Code) D. 404 633-5281 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969)
A. R&D PROFESSIONALS (Total): 4
B. ALL OTHER PERSONNEL (Total): 19

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 280,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Animal studies of aspects of TB epidemiology inclusive of interaction of mycobacterial infections, vaccination against TB, virulence of wild strains of tubercle bacilli, skin hypersensitivity to mycobacterial antigens, chemoprevention and chemotherapy of mycobacterial infections.

Continuing surveillance of wild strains of tubercle bacilli isolated from untreated patients for sensitivity to major (first line) anti-tuberculosis drugs.

Preparation of large volumes of crude filtrates of mycobacterial cultures for skin test antigen extraction.

Potency studies of newly prepared skin test antigens in animals.

06-13 Microbiology
06-16 Physiology
06-15 Pharmacology
06-01 Biochemistry
06-05 Clinical Medicine

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL-1

8. MAJOR EQUIPMENT:

The animal facility consists of eight units which can house 1,000 guinea pigs each. Animals are kept six to a cage. The record system that has been developed, and the methods of animal identification, permit complete randomization of all experiments. All studies at the laboratory are conducted double blind.

9. COMMENT AND PUBLICATION REFERENCES:

None.

10. DATE OF REPORT:

Fort Collins Laboratories
INSTALLATION

HEW (HSMHA)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Archie D. Hess A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Fort Collins (Nearest City) B. Larimar (County) C. Colorado (State)

4. P. O. ADDRESS: Fort Collins Laboratories, EIP, NCDC, P.O. Box 551
A. Fort Collins (City) B. Colorado (State) C. 80521 (Zip Code) D. 303 484-2241 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 37
B. ALL OTHER PERSONNEL (Total): 17

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 662,300
B. EXTRAMURAL (Total): $ 25,500

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Arboviral Disease Section: Plans and conducts field and laboratory research on the ecology, epidemiology, and control of western and St. Louis encephalitis and other arboviral disease problems. Provides technical consultation and assistance to State and local health departments and other interested agencies.

Streptococcal Disease Section: Plans and conducts ecological, epidemiological, and laboratory research on factors relating to the incidence, prevention, and control of streptococcal disease and its nonsupporative sequelae, acute rheumatic fever and acute glomerulonephritis. Provides technical consultation and assistance to State and local health departments and other interested agencies.

Zoonoses Section: Plans and conducts field and laboratory investigations on the epidemiology, ecology, and control of selected zoonoses including plague, tularemia, psittacosis, rickettsioses, pseudotuberculosis and related infections. Provides technical consultation and assistance to State and local health departments and other interested agencies. Prepares surveillance reports on plague in the U.S. for WHO.

06-01 Biochemistry
06-03 Biology
06-05 Clinical Medicine
06-06 Environmental Biology
06-16 Physiology

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES
Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

The laboratory has a wide range of specialized laboratory research equipment and facilities for conducting experiments and tests required to support the communicable disease studies.

Special Equipment:

1. Bioclimactic Chambers: To reproduce ideal climactic conditions for vector control studies.

9. COMMENT AND PUBLICATION REFERENCES:

None.

10. DATE OF REPORT: October 23, 1969

Health Program Systems Center — INSTALLATION
HEW (HSMHA) — AGENCY OR DEPT.

569

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: E.S. Rabeau, M.D.
A. TECHNICAL DIRECTOR: Lawrence E. Berg

3. LOCATION: A. Tucson (Nearest City) B. Pima (County) C. Arizona (State)

4. P. O. ADDRESS: P.O. Box 11340
A. Tucson (City) B. Arizona (State) C. 85706 (Zip Code) D. 602-294-3451 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 24
B. ALL OTHER PERSONNEL (Total): 25

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 528,495.00
B. EXTRAMURAL (Total): $ 0

MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Health Program Systems Center, Tucson, Arizona is the applied health services research center of the Indian Health Service, Health Service and Mental Health Administration (HSMHA). Its mission is to develop, test, refine, and demonstrate optimal ways of planning, budgeting, implementing, and evaluating the Service's comprehensive program for individual and community health services for almost 400,000 American Indians and Alaska Natives. Towards this mission, diversified operations research and systems analysis techniques are being used to develop, among other things, more definitive descriptions of health problems and priorities; responsibe health information systems; simulation models of health services delivery systems; optimal resource allocation models; methods for efficient utilization of professional and auxilliary manpower; and meaningful planning and evaluation methods. (05-01 Behavioral & Social Sciences - Administration & Management - Program Planning and Budgeting) (05-02 Behavioral & Social Sciences - Documentation & Information Technology) (06-05 Biological & Medical Sciences - Clinical Medicine)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

570 8. MAJOR EQUIPMENT:

Currently time-sharing on CDC 3300 system; it has been proposed that the Center acquire IBM 360-40 system with remote terminal capabilities.

9. COMMENT AND PUBLICATION REFERENCES:

The program of the Health Program Systems Center has been described in "Schlafman, Irvin H. 'Health Systems Research to Deliver Comprehensive Service to Indians', Public Health Reports U. S. DHEW, August, 1969" In addition, the research products are published by Government Printing Office in a series available at the Center. These have covered subjects such as evaluation of water and waste disposal systems, transportation and communication, evaluation of impact of family planning programs, health attitudes of Indians service population, and evaluation of specific disease control programs.

10. DATE OF REPORT: October 17, 1969

INTRAMURAL RESEARCH PROGRAM
INSTALLATION

HEW (HSMHA)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: John C. Eberhart, Ph. D.
A. TECHNICAL DIRECTOR: John C. Eberhart, Ph. D.

3. LOCATION: A. Bethesday (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: Intramural Research Program, National Institute of Mental Health
A. Bethesda (City) B. Maryland (State) C. 20014 (Zip Code) D. 301-496-3501 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 60
B. ALL OTHER PERSONNEL (Total): 188

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ $6.5 million
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts a comprehensive long-term program of clinical, behavioral and biological research dealing with the causes, diagnosis, treatment, and prevention of mental disease, and the basic psychosocial and biological processes which determine both adaptive and maladaptive behavior, including:

a. The roll of environmental and hereditary factors in schizophrenia and personality formation and the effects of family relations on mental disorders.
b. The influence of the social environment upon human behavior.
c. Sensory and perceptual dimensions of behavior.
d. Normal and pathological development in the infant and child through study of the evolution of behavior as related to early family formation.
e. Biological factors in mental diseases and somatopsychic relationships, including studies of the effects of pharmacological processes.
f. Human and animal behavior in both normal and pathological conditions, including the development of behavior, its biological substrate, and the forces which limit or enhance human functioning.
g. Neuroanatomical, neurophysiological and biophysical research on the central and peripheral nervous systems.
h. Biochemical mechanisms of importance in the metabolism and functions of the nervous system, including biological functions of molecules, particularly SRNA.
i. Plant biochemistry with emphasis on enzyme mechanisms.
j. Intermediary metabolism with particular focus on the mechanisms of oxygenate enzymes that catalyze the hydroxylation of certain organic molecules.

(05-10 Behavioral & Social Sciences - Psychology,) (05-11 Sociology;)
(06-05 Biological & Medical Sciences - Clinical Medicine,)
(06-16 Physiology; 06-15 - Pharmacology).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Equipment utilized in analyzing endogenous and radio-active substances.

9. COMMENT AND PUBLICATION REFERENCES:

Projects are described in NIMH Annual Reports.

10. DATE OF REPORT: October 1969

Kansas City Laboratory — INSTALLATION

HEW (HSMHA) — AGENCY OR DEPT.

573

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Tom D. Y. Chin A. TECHNICAL DIRECTOR: Dr. Fred E. Tosh

3. LOCATION: A. Kansas City (Nearest City) B. Wyandotte (County) C. Kansas (State)

4. P. O. ADDRESS: Ecological Investigations Program, NCDC, 2002 W.39th Street

A. Kansas City (City) B. Kansas (State) C. 66103 (Zip Code) D. 816 374-2162 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 32

B. ALL OTHER PERSONNEL (Total): 33

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 798,900

B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Office of the Program Director: Directs, guides, & coordinates all activities of the Program. Develops new activities to obtain information essential for prevention and control of communicable diseases. Directs epidemiologic and etiologic studies of human and animal leukemia. Provides analytical and statistical services. Provides analytical & statistical services. Provides overall administrative services for the Program.

Mycoses Section: Plans & conducts epidemiological & laboratory investigations of the systemic funcal diseases. Investigates single cases & out-breaks to define the clinical course of the diseases and control sources of infection. Develops diagnostic techniques, specific skin tests antigens, and investigates the survival and propagation of the pathogenic fungi in nature.

Virus Disease Section: Plan and conduct epidemiological and laboratory studies of acute respiratory diseases of viral and mycoplasmal etiology and of viral meningitis and encephalitis. Evaluates efficacy of developmental vaccine, for control of respiratory diseases. Develops and evaluates methods of control of neurotropic virus diseases. Provides consultation services regarding respiratory and neurotropic disease problems. Develops and improves laboratory & diagnostic techniques for these agents.

Biological and Medical Sciences 06-01 - Biochemistry; 03 - Biology; 05 - Clinical Medicine; 06 - Envir. Biology; 13 - Microbiology; 16 - Physiology.

574 8. MAJOR EQUIPMENT:

The laboratory has a wide range of specialized laboratory research equipment and facilities for conducting experiments and tests required to support the communicable disease studies.

Special Equipment:

1. Electron Microscope: To facilitate and improve accuracy of experiments and results.

9. COMMENT AND PUBLICATION REFERENCES:

None.

10. DATE OF REPORT: October 23, 1969

Laboratory Division — INSTALLATION

HEW (HSMHA) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: David J. Sencer, M.D.
A. TECHNICAL DIRECTOR: U. P. Kokko, M.D.

3. LOCATION: A. Atlanta (Nearest City) B. DeKalb (County) C. Georgia (State)

4. P. O. ADDRESS: Laboratory Division, NCDC, 1600 Clifton Road
A. Atlanta (City) B. Georgia (State) C. 30333 (Zip Code) D. 404 633-3311 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 268
B. ALL OTHER PERSONNEL (Total): 384

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 8,700,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Methodology research to improve clinical laboratory diagnostic procedures and to define public health problems in bacteriology, mycology, parasitology, rickettsiology, and virology.

Applied research and development in clinical chemistry and hematology to evaluate methods and instrumentation, improve reference materials, study problems of specimen handling, establish norms for biologic parameters, develop batteries of tests and control procedures suitable for isolated small laboratories, and evaluating commerical biochemicals.

R&D on diagnostic biological reagents, including methods for producing greater yields, greater reliability and stability, and whenever possible, reagents which are non-infectious. In addition, approximately 150 commerical reagents are evaluated yearly for compliance with recommended specifications.

Research to develop and improve techniques to test the diagnostic proficiency of clinical laboratories.

Development and evaluation of pentavalent human anti-botulinum gamma globulin and gamma globulin for several arboviruses.

06-01 Biochemistry
06-05 Clinical Medicine
06-13 Microbiology
06-15 Pharmacology
06-16 Physiology

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Spectrophotometers
Gas Chromatographs
Robot Chemist
Anto-analyzers
Autotiters
Zonal centrifuge
Fluorescent Antibody microscope
Electron microscopes
Liquid nitrogen generator
General clinical laboratory equipment.

9. COMMENT AND PUBLICATION REFERENCES:

None.

10. DATE OF REPORT: October, 1969

Laboratory Division
INSTALLATION

HEW (HSMHA)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: David J. Sencer, M.D.
A. TECHNICAL DIRECTOR: U. P. Kokko, M.D.
G. W. Pearce, M.D.

3. LOCATION: A. Savannah (Nearest City) B. Chatham (County) C. Georgia (State)

4. P. O. ADDRESS: Laboratory Division, NCDC, P.O. Box 2167
A. Savannah (City) B. Georgia (State) C. 31402 (Zip Code) D. 912 897-2741 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 21
B. ALL OTHER PERSONNEL (Total): 73

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 800,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Investigations on the habits and tropisms of arthropod vectors.

Development of analytical methods for pesticide determinations.

Investigations on insecticide application equipment and packaging (including an aircraft vapor disinsection system).

Development of specifications for insecticides used in vector control.

Research on new and improved methods for chemical control of arthropod vectors as well as on alternate non-insecticidal techniques.

Studies on detection and measurement of arthropod populations.

Resistance of insects to pesticides.

Research on molluscides and rodenticides.

06-06 Biological & Medical Sciences - Environmental Biology

06-03 Biological & Medical Sciences - Biology

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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578 **8. MAJOR EQUIPMENT:**

Gas Chromatographs
Spectrophotometers (including Nuclear Magnetic Resonance).
Standard chemical laboratory equipment.

7

9. COMMENT AND PUBLICATION REFERENCES:

None

10. DATE OF REPORT: October, 1969

National Center for Prevention and Control of Alcoholism — INSTALLATION

HEW (HSMHA) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Dr. Jack H. Mendelson
   A. TECHNICAL DIRECTOR: Dr. Jack Mendelson

3. LOCATION: A. Washington, D. C. (Nearest City) B. - (County) C. - (State)

4. P. O. ADDRESS: St. Elizabeths Hospital, William A. White Bldg., Room 490
   A. Washington, D. C. (City) B. (State) C. 20032 (Zip Code) D. 202, 562-4000, X479 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 7
   B. ALL OTHER PERSONNEL (Total): 9

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 334,000
   B. EXTRAMURAL (Total): $ 0

. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The activities of the Center are directed toward clarification of the nature of the addictive process in alcoholism. The experimental program is based upon the premise that the biological bases of addiction are associated with neurochemical, metabolic, and neurophysiological correlates of behavior. The research program is concerned with the analyses of the basic biological and biochemical correlates of alcoholism in man and with the development of alcohol addiction in experimental animals.

In summary, the experimental program of the Center focuses upon three related areas:

(1) Correlation of a number of biological factors (alcohol metabolism, magnesium balance, electrolyte balance, and endocrine homeostasis) with behavioral observations obtained on alcoholic subjects during experimentally induced intoxication and withdrawal.

(2) Experimental analysis of drinking patterns of alcoholic subjects and concurrent study of behavioral tolerance for alcohol.

3) Development of an animal preparation which meets the pharmacological criteria of addiction to alcohol, tolerance, and dependence.
(05-10 Behavioral & Social Sciences - Psychology) (06-01 Biological & Medical Sciences - Biochemistry) (06-03 Biological & Medical Sciences - Biology) (06-15 Biological & Medical Sciences - Pharmacology) (06-16 Biological & Medical ciences - Physiology)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Programming and recording circuitry for operant analysis of human and animal behavior in alcohol-related experiments. Transistorized circuitry had been specially constructed for assessing experimental animal (monkeys, rats and pigeons) behavior in reward association and avoidance paradigms. Specially constructed circuitry for human studies permits analysis of patterns of acquisition and consumption of ethanol during experimentally induced intoxication and withdrawal.

9. COMMENT AND PUBLICATION REFERENCES:

Projects described in NIMH Annual Reports

10. DATE OF REPORT: October 1969

Phoenix Laboratories — INSTALLATION
HEW (HSMHA) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Dr. James E. Maynard
A. TECHNICAL DIRECTOR: same

3. LOCATION: A. Phoenix (Nearest City) B. Maricopa (County) C. Arizona (State)

4. P. O. ADDRESS: Phoenix Laboratories, EIP, NCDC, 4402 North 7th Street
A. Phoenix (City) B. Arizona (State) C. 85014 (Zip Code) D. 602 261-3393 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 33
B. ALL OTHER PERSONNEL (Total): 13

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 303,900
B. EXTRAMURAL (Total): $ 284,300

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Disease Investigations Section: Plans and conducts clinical and epidemiological investigations of selected infectious diseases with emphasis on laboratory investigations of viral hepatitis and integrated field and laboratory studies of interactions between nutritional status and diarrheal disease. Conducts studies of acute and chronic respiratory disease and makes epidemiologic investigations of disease outbreaks as they occur.

Applied Microbiology and Planetary Quarantine Section: Defines, resolves, and assesses the public health significance of microbial contamination problems within specific intramural environments and in relation to planetary quarantine. Develops, evaluates, and applies procedures for the detection,enumeration, and identification of settings as well as within spacecraft and associated products. Develops, evaluates, and applies methods of microbial contamination control utilizing principles of sterilization, decontamination, containment, and personnel control.

06-05 - Clinical Medicine
06-16 - Physiology
06-13 - Microbiology
06-06 Environmental Biology

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
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8. MAJOR EQUIPMENT:

The laboratory has a wide range of specialized laboratory research equipment and facilities for conducting experiments and tests required to support the communicable disease studies.

Special Equipment:

1. Laminar Flow Clean Room: To study and evaluate effectiveness of laminar air flow in preventing microbial contamination during assembly of spacecraft components.

9. COMMENT AND PUBLICATION REFERENCES:

None.

10. DATE OF REPORT: October 23, 1969

San Juan Laboratories
INSTALLATION

HEW (HSMHA)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Dr. Fredrick F. Ferguson A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. San Juan (Nearest City) B. (County) C. Puerto Rico (State)

4. P. O. ADDRESS: San Juan Laboratories, USPHS, NCDC, EIP, P.L. Box 52
   A. Old San Juan (City) B. Puerto Rico (State) 00902 (Zip Code) D. 174 722-4982 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 8
   B. ALL OTHER PERSONNEL (Total): 7

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 178,000
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Tropical Disease Section: Plans and conducts investigations on the epidemiology, ecology, and control of schistosomiasis and other tropical diseases. Provides consultation services to the Puerto Rico Department of Health and other interested agencies in the Caribbean area.

06-06 Environmental Biology
06-13 Microbiology
06-05 Clinical Medicine

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

8. MAJOR EQUIPMENT:

The laboratory has a wide range of specialized laboratory research equipment and facilities for conducting experiments and tests required to support the communicable disease studies.

9. COMMENT AND PUBLICATION REFERENCES:

None.

10. DATE OF REPORT: October 23, 1969

Venereal Disease Research Laboratory	HEW (HSMHA)
INSTALLATION	AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Leslie C. Norins, M.D., Ph.D.
A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Atlanta (Nearest City) B. DeKalb (County) C. Georgia (State)

4. P. O. ADDRESS: Venereal Disease Research Lab, Natl. Communicable Disease Center
A. Atlanta (City) B. Georgia (State) C. 30333 (Zip Code) D. 404 633-3311 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 20
B. ALL OTHER PERSONNEL (Total): 59

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,000,000.00
B. EXTRAMURAL (Total): $ None

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Provides the Venereal Disease Branch of the NCDC with a center for basic and applied research in venereal diseases. Serves as a reference, evaluation, training and consultation facility for the U.S. in the development, use and quality control of serologic and other tests for venereal diseases. Serves as a Serological Reference Laboratory for the World Health Organization.

Development of serologic tests for gonorrhea.

Development of improved holding and transport medium for gonococci.

Development of test for detection of incubating syphilis.

Development of syphilis vaccine.

Automation of serologic tests for syphilis and gonorrhea.

Provides services in areas of reagents, testing, evaluation, consultation and training to state public health laboratories, key Federal laboratories, and other designated laboratories concerned with laboratory diagnosis of venereal diseases.

06-01 Biological & Medical Sciences - Biochemistry
06-05 Biological & Medical Sciences - Clinical Medicine
06-16 Biological & Medical Sciences - Physiology

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

The laboratory has a wide array of the usual equipment utilized in immunological and microbiological research.

The laboratory also has operational, and available for viewing, several devices for automated serology, including instrumentation for agglutination, hemagglutination, complement fixation, and immunofluorescence.

9. COMMENT AND PUBLICATION REFERENCES:

References: Annual Report, Venereal Disease Branch, National Communicable Disease Center.

10. DATE OF REPORT: October 1969

Winfred Overholser Division of Clinical Research — INSTALLATION

HEW (HSMHA) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Francis N. Waldrop, M.D.
   A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Washington, D. C. *(Nearest City)* B. *(County)* C. *(State)*

4. P. O. ADDRESS: Station L NCMHSTR
   A. Washington, D. C. *(City)* B. *(State)* C. 20032 *(Zip Code)* D. 202-562-4000 *(Telephone (Area Code & No.)*

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 14
   B. ALL OTHER PERSONNEL (Total): 6

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 372,000
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Winfred Overholser Division of Clinical Research plans, develops, and conducts research programs and projects to obtain new knowledge of the causes of mental disorders, and of the factors bearing upon their treatment and possible prevention. Examples of recently completed and current projects include:

(1) The development and demonstration of improved treatment techniques for early return to the community of geriatric patients; (2) the investigation of reading and learning problems in hospitalized mentally ill children; (3) the investigation of possible psychological factors influencing the development of criminal behavior; (4) study of social environments of patients admitted to Saint Elizabeths Hospital from Health Area D of the District of Columbia, particularly with regard to the possible role of social stress in precipitating the need for hospitlization; (5) the investigation of possible chromosome abnormalities in mentally ill persons, especially those with concurrent neurologic disease and those with a history of serious antisocial behavior and/or drug abuse; (6) the demonstration of conditioning techniques in improving the self-care and social behavior of adult patients with severe mental retardation; and (7) the investigation of long-range patterns of behavioral abnormality in schizophrenic patients, with particular emphasis on developing methods of predicting such patterns in individual cases to permit more effective prevention. (05-10 Behavioral & Social Sciences - Psychology) (05-11 Behavioral & Social Sciences - Sociology) (06-05 Biological & Medical Sciences - Clinical Medicine)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

None

9. COMMENT AND PUBLICATION REFERENCES:

Projects described in NIMH Annual Reports.

10. DATE OF REPORT: October 1969

National Institutes of Health — INSTALLATION
HEW — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Robert Q. Marston, M. D. A. TECHNICAL DIRECTOR: Robert W. Berliner, M.D.

3. LOCATION: A. Washington, D. C. (Nearest City) B. (County) C. (State)

4. P. O. ADDRESS:

A. Bethesda (City) B. Maryland (State) C. 20014 (Zip Code) D. 301-656-4000 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 1,128
B. ALL OTHER PERSONNEL (Total): 3,465

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 46,755,000
B. EXTRAMURAL (Total): $ 0

. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes): The National Institutes of Health is composed of the National Library of Medicine, the Bureau of Health Professions Education and Manpower Training and 12 research Institutes and Divisions. Eleven of these have research laboratories and some also have hospital beds or other facilities for clinical research. They are: National Cancer Institute, National Heart Institute, National Institute of Allergy and Infectious Diseases, National Institute of Arthritis and Metabolic Diseases, National Institute of Child Health and Human Development, National Institute of Dental Research, National Institute of Neurological Diseases and Stroke, National Institute of Environmental Health Sciences, National Eye Institute,* Division of Biologics Standards and the Division of Computer Research and Technology. The National Institute of General Medical Sciences supports grant and contract research and training in fields not covered y the categorical foci at other Institutes; it has no intramural laboratories or linics.

eparate inventory forms are provided for all of these Institutes and Divisions. owever, overall policy and program direction, general administrative, engineering nd personnel services, etc. and a variety of other services and facilities are rovided by NIH. The Clinical Center is operated as a research hospital for all f the Institutes which have clinical programs. The Division of Research Services rovides laboratory animals, veterinary pathology service, biomedical engineering nd instrumentation development, library, and visual arts services. The Division f Research Grants supervises central grant application referral and review and rants policy.

For purposes of this inventory, the NEI is included in National Institute of eurological Diseases and Stroke, because NEI was not activated until July 1, 1969.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT: The Division of Research Services has a wide range of regular
590 and special equipment appropriate to its mission:

Large animal rearing and quarantine facilities
special pathogen-free laboratory animal colinies
gnotobiotic (germfree) animal equipment
ultra high speed motion picture camera (10,000 frames/second)
animation camera and stand for cinematography
high volume sampler (for sampling virus and bacteria)
ultracentrifuge
smoke system
ozone sensing device
extra large x-ray for large animals -- horse, cow, etc.
experimental laser system
complete machine shop for fabrication of prototype laboratory instruments (mechanical, electronic, etc.)

The Clinical Center has automated clinical laboratory equipment of a highly sophisticated nature, a radiation safety laboratory, whole-body counters, scintillation counter, "tetra-scanner" for brain scans, and a pharmaceutical development laboratory. The Division of Research Grants, in addition to its functions of referral and review of grants, operates statistical systems for collating information on biomedical research grants supported by NIH and DHEW.

9. COMMENT AND PUBLICATION REFERENCES: The NIH Almanac, published annually, describes the structure and functions of the central organization and the Institutes and Divisions of NIH. This is available through the office of the Director of Information, NIH (301-496-5787). An annual scientific directory and bibliography is also available from the same source.

10. DATE OF REPORT:

Division of Biologics Standards
INSTALLATION

HEW (NIH)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Roderick Murray
A. TECHNICAL DIRECTOR: Dr. Roderick Murray

3. LOCATION: A. Bethesda (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: Bldg. 29, Room 129, National Institutes of Health
A. Bethesda (City) B. Maryland (State) C. 20014 (Zip Code) D. 301-496-3556 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 78
B. ALL OTHER PERSONNEL (Total): 194

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 4,737,451
B. EXTRAMURAL (Total): $ 1,417,087

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Division of Biologics Standards is assigned the regulatory responsibility of carrying out the biologics control provisions of the Public Health Service Act. All research conducted is related to this basic function. The Division strives to establish the necessary standards for new materials as quickly as possible.

There are six laboratories within the Division each with its own area of emphasis. The Laboratory of Bacterial Products is concerned with bacterial infections such as tetanus, typhoid, pertussis, cholera, tuberculosis and allergic reactions. The Laboratory of Blood and Blood Products embraces several major areas - the preparation and characterization of blood products, investigations of their stability and potency and standardization and improvement of assay techniques. The Laboratory of Control Activities has responsibility for performing several tests on all biological products. In addition, it performs research on antivenins and rabies vaccines. The Laboratory of Pathology has a continuing program to study the pathogenesis of infectious diseases using animal models. The research program of the Laboratory of Viral Immunology studies such problems as rubella, hepatitis, smallpox, measles, and mumps. The Laboratory of Virology and Rickettsiology has responsibility for influenza vaccine, yellow fever vaccine, adenoviruses and arborviruses. In addition, the Division has a Contract Program which is designed to obtain data beyond those which can be obtained within the framework of its direct operations.

(06-01 Biochemistry; 06-03 Biology; 06-13 Microbiology; 06-15 Pharmacology; 07-03 Organic Chemistry)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

The Division itself has, or through central NIH has access to, the necessary special as well as usual equipment and facilities systems for its work, such as electron microscopy, ultra centrifuge, computers, animal isolation, etc.

9. COMMENT AND PUBLICATION REFERENCES:

Reports on research results made through the scientific literature; further informati available through the Office of the Director or the Information Officer, DBS

10. DATE OF REPORT: October 1969

Division of Computer Research and Technology
INSTALLATION

HEW (NIH)
AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
   - (1) ☒ GOVERNMENT-OPERATED
   - (2) ☐ FFRDC
   - (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
   - (1) ☐ GOVERNMENT-OPERATED
   - (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Arnold W. Pratt, M.D. A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Bethesda (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: Building 12A, Room 1015, National Institutes of Health

A. Bethesda (City) B. Maryland (State) C. 20014 (Zip Code) D. 301-496-5703 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 166

B. ALL OTHER PERSONNEL (Total): 152

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 4,486,188.00(see item 9.)

B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Functions: Plans, implements and manages an integrated research and development program in support of the conduct and management of the NIH research programs.

(a) Research and development: The expertise of the Division, comprising applied mathematics, physical sciences, computer-related engineering and computer science is applied collaboratively in support of the intramural and collaborative programs of the categorical Institutes at NIH. The Division exercises primary responsibility for the development of new mathematical procedures, new computer-based data handling systems and the engineering design of new methodologies for data capture and analysis. Particular emphasis is currently placed on electrophysiology, physical chemistry and chemical physics, applied linguistics and new management procedures such as simulation of sociomedical programs.

(b) Service: Maintains a large multiprocessor central computer configuration for scientific computation and general purpose data processing. Provides support and computer programming in a variety of programming languages. Computer operation including interactive and remote job entry terminals with supporting services of keypunch, keytape, plotting, graph scanning and punch card facilities.

COSATI Codes: 12-01 Mathematical Sciences - Mathematics and Statistics; 09-02 Electronics and Electrical Engineering - Computers - Application; 07-04 Chemistry - Physical Chemistry; 06-04 Biological and Medical Sciences - Bionics - Physiology - Electrophysiology.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Computers: 360/50(2) and 360/65 with shared libraries and interactive as well as remote job entry terminals.
360/40
PDP-10 with TTY33 remotes and PDP-8 controlled image (cell) scanner
CDC 3100 with SS100 analog in a hybrid configuration for on-line data acquisition
ACT 30 (attached to 360/50) for three dimentional display manipulation
MAC 16 configured as a Portable Laboratory Data Acquisition System*
SEL 810B with voice answer back unit for Medical Telecommunication Research
Assorted plotters, graph scanners, A to D converters and data capture equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Reports on research results are published in the scientific literature.

Further information available through the Office of the Director, DCRT (301-496-570

*(See item 6) The service functions of the Division are funded under a fee for service system of reimbursement. During FY 1969 computational and data processing services rendered to users other than DCRT's internal research programs totaled $3,985,743.00.

10. DATE OF REPORT: October 1969

Gerontology Research Center
INSTALLATION

HEW (NIH)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Dr. Nathan Shock
A. TECHNICAL DIRECTOR: Dr. Nathan Shock

3. LOCATION: A. Baltimore City (Nearest City) B. Baltimore County (County) C. Maryland (State)

4. P. O. ADDRESS: Gerontology Research Center, NICHD, Baltimore City Hospitals
A. Baltimore (City) B. Maryland (State) C. 21224 (Zip Code) D. (301) 342-5400 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 74
B. ALL OTHER PERSONNEL (Total): 50

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,561,790
B. EXTRAMURAL (Total): $ ---

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts research designed to obtain fundamental knowledge of the nature of the aging process; analyzes changes in the vital capacities of the aging individual and determines methods for preventing or compensating for loss of functions; and serves as a center for national and regional research by Federal or non-Federal investigators working on problems of aging.

Specifically, conducts research designed to determine aging effects from changes at the cellular level; structural characteristics and the effect of age on biological substances; comparative age changes in cells and tissues of selected animals and humans; effect of environmental factors on life span; effect of age changes in the performances of specific organ systems and their integration within the human; influence of age upon behavioral responses; and mechanisms for conditioning of autonomic responses and relation of behavioral responses to physiological conditions.

(06-01 Biochemistry; 06-03 Biology; 06-13 Microbiology; 07-3 Organic Chemistry; 05-10 Psychology; 05-11 Sociology; 06-16 Physiology; 06-05 Clinical Medicine).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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8. MAJOR EQUIPMENT:

The Center has a wide range of regular and special equipment and facilities appropriate to the type of biomedical research being conducted.

Special Facilities: The Center has a specific pathogen free animal facility and, in addition, maintains a source of aged rats and dogs for gerontology research.

9. COMMENT AND PUBLICATION REFERENCES:

Publications

The Gerontology Research Center

Further information available through the Director, Gerontology Research Center, NICHD, Baltimore City Hospitals, Baltimore, Maryland 21224.

10. DATE OF REPORT: September, 1969

Middle America Research Unit
INSTALLATION

HEW (NIH)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Karl M. Johnson
A. TECHNICAL DIRECTOR: Dr. Karl M. Johnson

3. LOCATION: A. Balboa Heights (Nearest City) B. Panama Canal Zone (County) C. (State)

4. P. O. ADDRESS: MARU, Box 2011*

A. Balboa Heights (City) B. Panama Canal Zone (State) C. Corrizal 5295 (Zip Code) D. 825-105 Panama (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 11
B. ALL OTHER PERSONNEL (Total): 38

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 750,262.00
B. EXTRAMURAL (Total): $ -------

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes): The conduct of research investigations of arthropod-borne viruses and related diseases, as well as certain parasitic and other diseases important in tropical areas. (06-03 Biology; 06-05 Clinical Medicine; 06-06 Environmental Biology; 06-13 Microbiology).

Has facilities, and staff specifically immune, for research investigations of the etiologic agent of Bolivian Hemorrhagic Fever and related viruses. (06-05 Clinical Medicine; 06-06 Environmental Biology; 06-13 Microbiology).

Provision of training through Associate, Guest Worker and Visiting Scientist Programs (05-09).

Surveillance of selected human and animal populations for several viral and protazoan infections, together with retrospective serum surveys, reveal opportunities for indepth disease ecology studies. Kenitic serologic studies related to selected viral etiologies are providing fundamental data on the characteristics and distribution of these diseases.

Sentinel animal, laboratory animal, insect vector, and serologic studies are revealing new information on the ecology of selected arthropod-borne viruses, and the antigenic relationships between individuals and groups of these viruses. Biophysical, biochemical, and morphological studies contribute to the characterization of the Tacaribe group of viruses. Detailed serologic, immunologic, and epidemiologic studies are conducted on the Machupo virus.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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598 8. MAJOR EQUIPMENT:

The Unit has the regular and special equipment and facilities appropriate to the type of biomedical research being conducted.

Virus secure facilities permit the handling of highly infectious viruses. A small insectry is available and facilities for the colonization of indigenous animals.

Basic facilities of an EAM system and the availability in the immediate area of an 1130 computer provide a statistical analysis capability.

9. COMMENT AND PUBLICATION REFERENCES:

Reports of research results are made through the scientific literature.

Further information available by writing to the Director, Middle America Research Unit, or through the Director for Intramural Research, NIAID, NIH, Bethesda, Md. (301-496-2144).

*The MARU unit is operated in collaboration with The U.S. Army Medical Research and Development Command (Army Medical Research Unit.)

10. DATE OF REPORT: September, 1969

National Cancer Institute
INSTALLATION

HEW (NIH)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Kenneth M. Endicott
A. TECHNICAL DIRECTOR: Dr. Kenneth M. Endicott

3. LOCATION: A. Bethesda (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: Building 31, Room 11A52, National Institutes of Health
A. Bethesda (City) B. Maryland (State) C. 20014 (Zip Code) D. 301-496-5615 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 561
B. ALL OTHER PERSONNEL (Total): 893

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ $27,166,000
B. EXTRAMURAL (Total): $ $145,579,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

A. Surveys of cancer incidence and effectiveness of treatment (Epidemiology).
B. Studies of agents that cause cancer and how they act (Cancer etiology):
    1) Role of viruses in causing cancer
    2) Role of chemicals and environmental agents in causing cancer
    3) Role of hormones, radiation, cigarette smoke, and other agents
    4) Mechanisms that cause cancer in lung, liver, and other tissues.
C. Pre-clinical aspects of cancer therapy:
    1) Isolation of anticancer agents from natural sources
    2) Synthesis and organic chemistry of anticancer agents
    3) Screening of agents for anticancer activity
    4) Pharmacology, toxicology, and similar studies in animals
    5) Other preclinical therapy: effect of hormones, radiation, etc.
D. Clinical cancer therapy studies:
    1) Support of clinical cancer research centers
    2) Develop methods for cancer detection and diagnosis in humans
    3) Trials of anticancer agents in humans (Clinical cancer chemotherapy)
    4) Clinical cancer surgery, radiation therapy, and endocrine therapy.
E. Studies of cancer biochemistry, host-tumor interaction, and other cancer biology.
F. Basic biology related to cancer but studied in non-cancer systems.
G. Support of special cancer research groups and cancer research institutions.
H. Training of Ph.D. and M.D. scientists for preclinical and clinical research.
I. Support of facilities, equipment development, biomathematics, communications, and planning related to cancer research.

CODES (Major codes underlined): 06-01 Biochemistry; 06-12 Bioengineering; 06-03 Biology; 06-05 Clinical medicine; 06-06 Environmental Biology; 06-12 Medical and hospital equipment; 06-13 Microbiology; 06-14 Medical personnel training; 06-15 Pharmacology; 06-16 Physiology; 06-18 Radiobiology; 06-20 Toxicology; 07-03 Organic chemistry; 15-02 Protective equipment against viruses.

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8. MAJOR EQUIPMENT:

1) Special virus isolation facility for research on cancer viruses.

2) Continuous flow blood separators for isolating various types of blood cells used for clinical and preclinical research.

3) "Life Islands" and "laminar air flow" rooms for maintaining germ-free environments for cancer patients who are very weak due to disease and to the powerful anticancer drugs that must be used.

4) Electron microscopes and ultracentrifuges, particularly for studies of cancer viruses.

5) Extensive facilities and laboratory equipment for all types of biomedical research related to cancer.

9. COMMENT AND PUBLICATION REFERENCES:

Mechanisms for support of activities listed on the previous page include the following (Numbers are approximate): 370 research projects conducted in-house in Bethesda; 1190 research grants to universities and non-profit institutions; 402 projects funded by contracts; 338 fellowships and similar awards to individuals; and 207 training grants to institutions.

Publication Refs:

THE NATIONAL CANCER INSTITUTE (PHS Publication 458) (Revised 1965)
PROGRESS AGAINST CANCER 1966 (PHS Publication 1546)
PROGRESS AGAINST CANCER 1967 (PHS Publication 1720)
PROGRESS AGAINST CANCER 1969 (PHS Publication 1956)
DRUGS VS. CANCER, RESEARCH REPORT (PHS Publication 1652) (Revised 1968)
VIRUS CANCER RESEARCH, RESEARCH REPORT (PHS Publication 1130) (Revised 1968)

Further information available from Office of the Director, NCI (301-496-5615) or the Public Information Office, NCI (301-496-2241).

10. DATE OF REPORT: October 1969

National Heart and Lung Institute — INSTALLATION

HEW (NIH) — AGENCY OR DEPT.

601

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: ____________

2. DIRECTOR: Dr. Theodore Cooper

A. TECHNICAL DIRECTOR: Dr. Theodore Cooper

3. LOCATION: A. Bethesda (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: Bldg. 31 5A51, National Institutes of Health

A. Bethesda (City) B. Maryland (State) C. 20014 (Zip Code) D. 301-496-5166 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 249

B. ALL OTHER PERSONNEL (Total): 317

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 12.0 million

B. EXTRAMURAL (Total): $ 142.5 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Institute conducts and supports research to increase scientific knowledge of the cardiovascular and pulmonary systems that the structural and functional abnormalities occurring with cardiovascular and pulmonary diseases may be defined and more effective means of prevention, diagnosis, and treatment developed. Research is carried out in the laboratory and clinical facilities of the NIH in Bethesda, by nationally organized targeted research programs supported largely by contracts to industrial organizations and to academic and other non-profit institutions, and by a large and diverse program of research and training grants to academic centers and non-profit hospitals and clinics. In 1969 the Institute provided scientific management and administration for nearly 1,700 research grants. It also awarded over 400 fellowships and supported a man-year equivalent of over 1,000 trainees through 274 research and clinical training grants. The Institute's intramural program included 360 scientific and technical staff in 1969 and encompasses both clinical and basic research in 11 main laboratories. It also provides research training through Associate Program, Guest Worker, and Visiting Scientist Programs. The program offices of the targeted research programs initiated, recommended for award, and supervised work being done in 1969 under 128 artificial heart research and development contracts; 9 Myocardial Infarction Research Units designed and administered for a national research program leading to the reduction of death and disability from heart attack; and 20 contracts in the National Blood Resource Program. The Institute also conducts a clinical application program which consists of therapeutic evaluation, epidemiology, and biometric research.

These activities include the support of basic, investigational, clinical and developmental research on cardiovascular and pulmonary diseases (06-01 Biochemistry; 06-02 Bioengineering; 06-03 Biology; 06-04 Bionics; 06-05 Clinical Medicine; 06-11 Life Support; 06-13 Microbiology; 06-15 Pharmacology; 06-16 Physiology; 06-19 Stress Physiology; 07-02 Inorganic Chemistry; 07-03 Organic Chemistry; 07-04 Physical Chemistry; 09-02 Computers; 09-03 Electronic and Electrical Engineering; 12-01 Mathematical and Statistics.

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8. MAJOR EQUIPMENT:

The Institute has a wide range of regular and special equipment and facilities appropriate to the conduct of biomedical research.

Special Equipment:
Block decoupler and external lock oscillator for 100 megacycle nuclear magnetic resonance; Cary Model 90 polarimeter with CAT attachment; Picker MS-902 mass spectrometer with MSDS-2 computer facility (PDP81), specialized programs available to public; Chemical ionization source for high pressure MS; computer attachment to LKB-9000 spectrometer; Model E4 electron spin resonance.

Walk-in anaerobic laboratory.

TRW Decay Time Fluorometer - capable of measuring decay times as short as 1.7 nanoseconds. Preparative and analytical ultracentrifuges; liquid scintillation counters; autoanalyzers and amino acid analyzers; electron microscopes.

9. COMMENT AND PUBLICATION REFERENCES:

Reports on research results are made through the scientific literature and in special program publications.

10. DATE OF REPORT: December 1969

National Institute of Allergy and Infectious Diseases
INSTALLATION

HEW (NIH)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Dr. Dorland J. Davis
   A. TECHNICAL DIRECTOR: Dr. Dorland J. Davis

3. LOCATION: A. Bethesda (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: Bldg. 31, Room 7A52, National Institutes of Health
   A. Bethesda (City) B. Maryland (State) C. 20014 (Zip Code) D. 301-496-2263 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 185
   B. ALL OTHER PERSONNEL (Total): 275

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 8,633,602
   B. EXTRAMURAL (Total): $ 85,057,419.00

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes): The support and conduct of basic investigational, clinical and developmental research on allergic and infectious diseases (06-01 Biochemistry; 06-03 Biology; 06-05 Clinical Medicine; 06-06 Environmental Biology; 06-13 Microbiology; 06-15 Pharmacology; 06-20 Toxicology; 07-03 Organic Chemistry).

Collaborative Program to support, through contract mechanism, research and development for new vaccines, therapeutic substances, obtainment of specific biologic data, and the production of research materials (06-05 Clinical Medicine; 06-13 Microbiology; 06-15 Pharmacology).

Provision and support of research training through Associate Program; Guest Worker and Visiting Scientist Programs; Training Grants; and Research Career Development Grants(05-09).

Research on viral and mycoplasmal respiratory diseases is conducted on a broad scale including both laboratory and clinical aspects, the characterization and etiologic role of the different agents involved, and the development of new and improved immunizing materials. Available, through various mechanisms, for these studies are up to 100 clinical beds, over 500 human volunteers, and field trials involving hundreds of thousands of people.

Basic studies in viral biology, biochemistry and virus-host cell interactions are fundamental to the discovery of new knowledge on the nature and cause of chronic and degenerative or slow virus diseases, the mechanisms of oncogenic activity, and the discovery of antiviral substances.

Basic and applied studies include bacterial organisms, antigens, toxins, and enzymes; protazoan and cestodian diseases; and the mechanisms involved in the immune response, and in allergic and immunologic diseases.

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8. MAJOR EQUIPMENT:

The Institute has a wide range of normal and special equipment and facilities appropriate to the conduct of biomedical research.

Special Equipment:

1. Through joint operation with AEC, development and use of ultraseparation equipment and techniques, including the use of continuous flow zonal centrifuges: Spinco Model E (60,000 r.p.m.); Spinco Model L (36,000 r.p.m.); Spinco Model Z4 (40,000 r.p.m., 10 liters per hour); (AEC) Series J (65,000 rpm, 30-50 liters per hour)

2. Analog and digital computer as tools in biomedical investigations--available from NIH central services.

9. COMMENT AND PUBLICATION REFERENCES:

Reports on research results made through the scientific literature; progress reports from contract research and development studies available through the Department of Commerce Clearinghouse.

Further information available through the Office of the Director, NIAID (301-496-2263) or the Public Information Office, NIAID (301-496-5717)

10. DATE OF REPORT: September 1969

National Institute of Arthritis and Metabolic Diseases — INSTALLATION

HEW (NIH) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Dr. G. Donald Whedon A. TECHNICAL DIRECTOR: Dr. G. Donald Whedon

3. LOCATION: A. Bethesda (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: Bldg. 31, Rm. 9A-52, National Institutes of Health

A. Bethesda (City) B. Maryland (State) C. 20014 (Zip Code) D. 301-496-5877 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   - A. R&D PROFESSIONALS (Total): 325
   - B. ALL OTHER PERSONNEL (Total): 299

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   - A. INTRAMURAL (Total): $ 13,072,000
   - B. EXTRAMURAL (Total): $ 119,458,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The support and conduct of basic, investigational, clinical and developmental research into the cause, prevention, diagnosis and treatment of the various arthritic, rheumatic and collagen diseases, and a broad spectrum of metabolic diseases, such as diabetes, other inborn errors of metabolism including cystic fibrosis and Lesch-Nyhan disease, gastroenterology, orthopedics, dermatology, endocrine disorders including dwarfism and goiter, urology and renal disease, hematology, mineral metabolism and subjects related to the above. Basic research also includes the disciplines of biochemistry; nutrition; pathology; histochemistry; chemistry; physical, chemical and molecular biology; pharmacology; and pathology (06-01 Biochemistry; 06-03 Biology; 06-05 Clinical Medicine; 06-13 Microbiology; 06-15 Pharmacology; 06-15 Physiology; 07-03 Organic Chemistry; 07-04 Physical Chemistry; 12-01 Mathematics and Statistics).

Collaborative research and development programs to support, through the contract mechanism, research into new materials and devices for the improvement of artificial kidneys; and into methodology for extraction of hormonal fractions. Distribution of hormonal fractions for research purposes. (06-05 Clinical Medicine; 06-01 Biochemistry; 11-01 Adhesives and Seals; 11-09 Plastics).

Provision and support of research and training through Research and Clinical Associate Programs; Visiting Scientist Programs; Training Grants; and Research Career Development Grants (05-09).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

The Institute has a wide range of normal and special equipment appropriate to the conduct of biomedical research.

Special Equipment:

1. Computer controlled X-ray Defraction Unit (Pace)
2. Altitude chamber (low altitude)
3. Large scale fermentation apparatus (300 gal. fermenter)
4. Computer controlled nuclear magnetic resonance spectrometer system
5. Metabolic chamber for human studies
6. Metabolic weighing system for patients (to 200 kilograms)
7. Analog and digital computers as tools in biomedical investigations
8. Recording spectrophotometers
9. Spectrophotometers, gamma scintillation; ultra-violet; kenetic
10. Polarimeter (Cary model 60)
11. Microcalorimeter
12. Liquid scintillation counters
13. Absorbance recorders
14. Automatic particle analyzer
15. Amino acid analyzers
16. Electron microscopes (Philips and RCA)
17. Ultracentrifuges (Beckman L2, L4; Spinco E)
18. High vacuum evaporator

9. COMMENT AND PUBLICATION REFERENCES:

Reports on research results are made through the scientific literature; progress reports from contract research and development studies are available through the Department of Commerce Clearinghouse.

Further information is available through the Office of the Director, NIAMD (301-496-5877) or the Public Information Office, NIAMD (301-496-3583).

10. DATE OF REPORT: November 1969

National Institute of Child Health and Human Development — HEW(NIH)
INSTALLATION — AGENCY OR DEPT

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Dr. Gerald D. LaVeck   A. TECHNICAL DIRECTOR: Dr. Charles U. Lowe

3. LOCATION: A. Bethesda (Nearest City)   B. Montgomery (County)   C. Maryland (State)

4. P. O. ADDRESS: Bldg. 31, Room 4A-27, National Institutes of Health
   A. Bethesda (City)   B. Maryland (State)   C. 20014 (Zip Code)   D. 301-496-3454 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 233
   B. ALL OTHER PERSONNEL (Total): 88

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 5,451,158
   B. EXTRAMURAL (Total): $ 62,175,040

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Supports and conducts basic research relating to maternal health, child health, and human development, including research in special health problems and requirements of mothers and children or aged persons, and in the fundamental sciences relating to the process of human growth, development, and prenatal development.

Specifically, the Institute supports and/or conducts research in areas which include biological and behavioral aspects of animal and human reproduction; contraceptive development; family planning; fetal survival and well being; disorders of infancy; infant mortality; control or enhancement of the physical, intellectual, social and behavioral bases of development; nature of the aging process; etiology, pathogenesis, epidemiology, treatment, and prevention of mental retardation; nutrition; and the learning process. In addition, Intramural Research scientists conduct basic research in the areas of biology, microbiology, biochemistry, neurophysiology and organic and inorganic chemistry as they relate to the mission of the Institute.

(06-01 Biochemistry; 06-03 Biology; 06-13 Microbiology; 07-3 Organic Chemistry; 05-10 Psychology; 05-11 Sociology; 06-16 Physiology; 06-05 Clinical Medicine).

Provision and support of research training through Associate Program; Guest Worker and Visiting Scientist Programs; Training Grants; and Research Career Development Grants (05-09).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

The Institute has a wide range of normal and special equipment and facilities appropriate to the conduct of biomedical research.

9. COMMENT AND PUBLICATION REFERENCES:

Publications

Fact Sheet
Highlights of Research Progress, 1967
Research and Training Programs of the NICHD
Reproduction and Population Research Program
Growth and Development Program
Perinatal Biology and Infant Mortality Program
Mental Retardation Program
Adult Development and Aging Program
The Gerontology Research Center
Children's Diagnostic and Study Branch
Research in Early Child Development

Further information available through the Office of the Director, NICHD (301-496-3454) or the Public Information Office, NICHD (301-496-4423).

10. DATE OF REPORT: September, 1969

NATIONAL INSTITUTE OF DENTAL RESEARCH — INSTALLATION

HEW (NIH) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Dr. Seymour J. Kreshover
   A. TECHNICAL DIRECTOR: Dr. Seymour J. Kreshover

3. LOCATION: A. Bethesda (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: Bldg. 30, Room 129-National Institutes of Health
   A. Bethesda (City) B. Maryland (State) C. 20014 (Zip Code) D. 301-496/3571 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 126*
   B. ALL OTHER PERSONNEL (Total): 179*

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 5,021,000
   B. EXTRAMURAL (Total): $ 22,962,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Supports and conducts basic, clinical and developmental research relating to the causation, prevention and control of dental diseases.

The Institute's Intramural Programs are implemented by Laboratories and Branches. Laboratories include: Biochemistry, Biological Structure, Microbiology and Physiology. Branches include: Oral Medicine and Surgery, Dental Services, Experimental Pathology, Biometry and Field Investigations and Genetics.

Collaborative Program supports, through contract mechanism, research and development relating to the production of research material, attainment of specific biological data, and refinement and testing of new preventive and/or therapeutic measures.

Provision and support of research training through Associate programs; Guest-Worker and Visiting Scientist program; Training Grants; and Research Career Development grants.

COSATI Codes: 06-05 Biological and Medical Sciences - Clinical Medicine - Dentistry, Pathology, Oral Diseases; 06-03 Biological and Medical Sciences - Biology - Genetics.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

The Institute has a wide range of normal and special equipment and facilities appropriate to the conduct of dental research.

Special Equipment

1. A twelve chair dental clinic supported by up-to-date facilities for radiological diagnosis, and complete laboratory facilities for fabrication of prosthetic devices.

2. Digital computer (32K) especially designed and operated in support of on-line, real time process control of ongoing laboratory experiments, the nature of which demands instantaneous monitoring for successful data acquisition. This equipment is soon to be interfaced with the NIH central computer facility, which now provides general ADP service to the scientific staff as a centralized NIH service.

3. Other special equipment includes: infrared absorption spectroscope, electron microscopes (4), X-ray diffraction apparatus for single crystal and/or powder analyses, analytical ultracentrifuge, and two completely equipped laboratories for electro-physiological studies of the nervous system.

9. COMMENT AND PUBLICATION REFERENCES:

Further information available through the Office of the Director, NIDR (301-496/3571) or the Public Information Office, NIDR (301-496/4261)

*Does not include personnel for custodial and central services provided by NIH.

10. DATE OF REPORT:

National Institute of Environmental Health Sciences — INSTALLATION
HEW (NIH) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Paul Kotin, M. D.
   A. TECHNICAL DIRECTOR: Paul Kotin, M. D.

3. LOCATION: A. Durham (Nearest City) B. Durham (County) C. N. C. (State)

4. P. O. ADDRESS: P. O. Box 12233
   A. Research Triangle Park (City) B. N. C. (State) C. 27709 (Zip Code) D. (919) 549-8221 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 54
   B. ALL OTHER PERSONNEL (Total): 122

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 3,577,000
   B. EXTRAMURAL (Total): $ 13,121,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts, fosters, and coordinates research on the biological effects of chemical, physical, and biological substances present in or introduced into the environment, to: (a) develop understanding of the mechanism of action of such substances, (b) provide the scientific basis for evaluating their extent and severity on a national scale, and (c) diagnose, define, and develop methods for treatment (06 Biological & Medical Sciences: 01 Biochemistry, 02 Bioengineering, 03 Biology, 05 Clinical Medicine, 06 Environmental Biology, 08 Food, 10 Industrial Medicine, 13 Microbiology, 15 Pharmacology, 16 Physiology, 18 Radiobiology, 19 Stress Physiology, 20 Toxicology, 07 Chemistry: 02 Inorganic, 03 Organic. 20 Physics: 08 Particle Physics).

Makes related grants for research, research training, traineeships, and fellowships (05 Behavioral and Social Sciences: 09 Personnel Training).

Collection and dissemination of information related to its program (05 Behavioral and Social Sciences: 02 Documentation and Information Technology).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Standard equipment for analytical and toxicological laboratories.

9. COMMENT AND PUBLICATION REFERENCES:

Reports on research results made through the scientific literature. Project information available through Science Information Exchange.

10. DATE OF REPORT: October 7, 1969

NATL. INSTI. OF NEUROLOGICAL DISEASES & BLINDNESS
INSTALLATION

HEW (NIH)
AGENCY OR DEPT.

613

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Dr. Edward F. MacNichol, Jr. A. TECHNICAL DIRECTOR: Dr. Edward F. MacNichol, Jr.

3. LOCATION: A. Bethesda (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: Building 31, Room 8A52, National Institutes of Health
   A. Bethesda (City) B. Maryland (State) C. 20014 (Zip Code) D. 301-496-3167 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 351
   B. ALL OTHER PERSONNEL (Total): 360

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 12,600,000
   B. EXTRAMURAL (Total): $ 107,004,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes): The NINDS has as its mission the solution of the problems caused by diseases of the brain, spinal cord, hearing, vision, and other special senses through sponsoring research on the various aspects of diseases: the cause, the epidemiology, the diagnosis, the prevention, and the cure. It is not concerned with delivery of medical care services for the treatment of these diseases.

The diseases of the nervous system can be roughly grouped: diseases of the central nervous system occurring in early life which includes suchthings as cerebral palsy, congenital deformities, hydrocephalus, meningitis, metabolic disorders affecting the brain, etc.; diseases of the adult central nervous system include Parkinson's Disease pre-senile dementia, Alzheimer's Disease, Pick's Disease, Jakob-Creutzfeldt Disease; tumors of the central nervous system; epilepsy and other convulsive disorders; there are special degenerative diseases such as multiple sclerosis; the infections of the nervous system; diseases of the neurological muscular system; and accident and injury of the nervous system. Also, research in the area of the diseases of the eye is conducted by carrying out research on various aspects of the vision problem. This includes causes, epidemiology, diagnosis, and the prevention and the cure of these various diseases. In addition to these diseases, there is research on the chemical, anatomical, and physiological basis for the function of the nervous system and the special senses which is relevant to all diseases. Clin. Medicine (06-05) Neurology (06-05), Neurosurgery (06-05), Neurochemistry (06-05), Microbiology (06-13), Pharmacology (06-15), Biomedical Biology (06-03), Physiology (06-16), Radiobiology (06-18), Toxicology (06-20), Bioengineering (06-02), Bionics (06-04), Brain (06-16).

Provision in support of research training is available in the labs in the form of guest workers, visiting scientists, training grants, career development grants and fellowships (06-05) (06-16) (06-04) (06-13) (06-18) Neurochemistry (06-05)

   A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

There are specific facilities required for the disciplines involved. Electronic sending devices, amplifiers and recorders to study the physiological events in the body. Equipment for all types of anatomical studies, light and electron microscopes and facilities for preparation of materials.

Clinical laboratories with hot and cold rooms as required.

Animal operating facilities.

Isolation laboratories for studying viral diseases and immunological phenomena.

9. COMMENT AND PUBLICATION REFERENCES:

Results of the research are published in scientific journals, as monographs and presented as scientific meetings.

The NINDS has a large program for scientific information dissemination, the core of which is the neurological information network. This network is a network of specialized information centers located in various universities throughout the country.

Further information available from the Office of the Director, NINDS (301-496-3167) or the Information Office (301-496-5751).

10. DATE OF REPORT:

PACIFIC RESEARCH UNIT — INSTALLATION
HEW (NIH) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: The NIAID contracts with Queens Hospital for the laboratory space and support personnel for the Unit.

2. DIRECTOR: Dr. Leon Rosen
A. TECHNICAL DIRECTOR: Dr. Leon Rosen

3. LOCATION: A. Honolulu (Nearest City) B. (County) C. Hawaii (State)

4. P. O. ADDRESS: Pacific Research Section, P.O. Box 1680
A. Honolulu (City) B. Hawaii (State) C. 96806 (Zip Code) D. Honolulu 513-141 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 3
B. ALL OTHER PERSONNEL (Total): 1

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 157,178.00
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The conduct of research investigations of certain viral and parasitic diseases which are special problems in the Pacific area (06-03 Biology; 06-05 Clinical Medicine, 06-06 Environmental Biology; 06-13 Microbiology).

Major scientific interest has been in studies on eosinophilic meningitis in Hawaii, island of the South Pacific, and Southeast Asia; laboratory and field studies of the dengue viruses; indepth studies of the mechanism of human infection with the zoonotic disease toxoplasmosis; and studies of the etiology and epidemiology of seasonal diarrhea in the Philippines.

A new study has been initiated of the feasibility of introducing a related but nonvector mosquito to compete with and eventually replace the major vector of human filariasis in Polynesia and Melanesia.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

The Unit has the regular and special equipment and facilities appropriate to the type of biomedical research being conducted.

9. COMMENT AND PUBLICATION REFERENCES:

Reports of research results are made through the scientific literature.

Further information available by writing to the Director, Pacific Research Unit, or through the Director of Intramural Research, NIAID, NIH, Bethesda, Maryland. (301-496-2144)

10. DATE OF REPORT: September, 1969

Rocky Mountain Laboratory
INSTALLATION

HEW (NIH)
AGENCY OR DEPT.

617

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Herbert G. Stoenner
A. TECHNICAL DIRECTOR: Dr. Herbert G. Stoenner

3. LOCATION: A. Hamilton (Nearest City) B. -- (County) C. Montana (State)

4. P. O. ADDRESS: Rocky Mountain Laboratory, National Institute of Allergy & Infectious Diseases
A. Hamilton (City) B. Montana (State) C. 59840 (Zip Code) D. 406-363-3211 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 36
B. ALL OTHER PERSONNEL (Total): 120

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 2,094,670
B. EXTRAMURAL (Total): $

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The conduct of research investigations involving infectious diseases, with special interest in zoonotic diseases and slow virus infections (06-01 Biochemistry; 06-03 Biology; 06-06 Environmental Biology; 06-13 Microbiology; 06-15 Pharmacology; 06-20 Toxicology; 07-03 Organic Chemistry).

Laboratory possesses special abilities in medical entomology (06-13 Microbiology).

Research training through Associate, Guest Worker and Visiting Scientist Programs (05-09).

The location of the laboratory plus its facilities provide a special site for study of the interrelationships of diseases of wildlife, domestic animals, and man, and of diseases requiring special isolation facilities. Current major research interests include diseases having a reservoir of infection in the natural environment; arthropods as transmitters of disease; slow virus or chronic viral diseases; the immunology of tuberculosis and other infectious diseases; the structure, composition, and role of microbial constituents in the disease process; and study of the immune and other host responses.

This laboratory has a long history of collaboration between its scientists and others located in many parts of the country and of the world. It has become a center of excellence for studies on the rickettsioses and in medical entomology.

A. ADDITIONAL COSATI CODES: 06-13 - Taxonomy of tick chigger and mite vectors of disease.

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

The Laboratory has a wide range of regular and special equipment and facilities appropriate to the type of biomedical research being conducted.

Special Equipment: (1) Animal holding facilities needed for slow virus research.

(2) Large animal holding facilities

(3) Reference Collections: a) Chiggers--over 1000 species; b) Other Mites--approximately 25,000 specimens; and c) Ticks--approximately 700 species.

9. COMMENT AND PUBLICATION REFERENCES:

Reports on research results are made through the scientific literature

Further information available through the Director, Rocky Mountain Laboratory, NIAID, Hamilton, Montana 59840.

A descriptive booklet "Rocky Mountain Laboratory: A Brief History of Its Growth and Research Activities" is available from NIAID or GPO.

10. DATE OF REPORT: September, 1969.

Department of the Interior

BIOLOGICAL LABORATORY
INSTALLATION

INTERIOR (Bu. of Comm. Fish)
AGENCY OR DEPT.

621

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: William A. Smoker
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Juneau (Nearest City) B. N/A (County) C. Alaska (State)

4. P. O. ADDRESS: P. O. Box 155, Biological Laboratory (Bu. of Comm. Fish.)
A. Auke Bay (City) B. Alaska (State) C. 99821 (Zip Code) D. 907 789 - 7231 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 27
B. ALL OTHER PERSONNEL (Total): 39

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1.2 million
B. EXTRAMURAL (Total): $ 400.0 thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: The laboratory's major goals are to obtain a comprehensive understanding of the stocks of fish and shellfish, their optimum yields and possible means of increasing production levels and to determine broad biological and environmental interrelationships necessary for effective resource management studies are carried out on Pacific Salmon (5 species), herring, groundfish, king crab, tanner crab, and shrimp.

(06-06) Sockeye Salmon (Bristol Bay). Development of methods for forecasting runs returning to Bristol Bay, determine optimum escapement levels, biological factors controlling successful spawning and how stocks can be increased.

(06-06) Pink and Chum Salmon (Estuarine Studies). Define biological and physical factors influencing success of spawning, develop methods of estimating abundance, examine effects of pesticides on survival.

(06-06) Groundfish (Ocean Perch). Studies of taxonomy, population dynamics, density, distribution, abundance, material mortality and migration patterns.

(06-06) Shellfish (King crab, tanner crab, shrimp and scallops). Acquire knowledge of biology, ecology, and population dynamics to develop estimates of yield and assist State of Alaaka in management programs.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Research vessels:	Sockeye	40 ft.
	Sablefish	40 ft.
	Heron	58 ft.
	Murre II	86 ft

These ships have total personnel of 4, 5, 6 and 3 respectively. The Sockeye is used in support of limited oceanographic studies. The Sablefish and Heron support Salmon, Herring and groundfish studies in coastal areas. The Murre II is a work vessel for tending and installing fish weirs and servicing shore facilities.

Other:

Gas chromatograph
Tag injector/magnetizer and wire detector

9. COMMENT AND PUBLICATION REFERENCES:

BCF Annual Report, Calendar Year 1968

10. DATE OF REPORT: 2/16/70

BIOLOGICAL LABORATORY
INSTALLATION

INTERIOR (BU. of COMM. FISH.)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Harry C. Davis (Acting)
   A. TECHNICAL DIRECTOR:

3. LOCATION: A. Milford (Nearest City) B. New Haven (County) C. Conn. (State)

4. P. O. ADDRESS: Biological Laboratory, Bu. of Comm. Fish.
   A. Milford (City) B. Conn. (State) C. 06460 (Zip Code) D. 203 878-2459 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 13
   B. ALL OTHER PERSONNEL (Total): 7

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 246.5 thousand
   B. EXTRAMURAL (Total): $ 100.7 thous

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: The laboratory develops basic biological information for increasing production of mollusks such as oysters and clams through development of commercially feasible techniques of seed production and methods of predator control.

(06-06) Biological and Ecological Studies of Oysters to develop new and better techniques for oyster culture.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Research Vessel "Shang Wheeler" 50 ft.

This boat, with a crew of one (1) is used in support of Oyster and Clam studies.

9. COMMENT AND PUBLICATION REFERENCES:

BCF Annual Report Calendar Year 1968

10. DATE OF REPORT:
10/27/69

BIOLOGICAL LABORATORY — INSTALLATION

INTERIOR (BU. OF COMM. FISH.) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: James E. Sykes   A. TECHNICAL DIRECTOR:

3. LOCATION: A. St. Petersburg (Nearest City)   B. Pinellas (County)   C. Florida (State)

4. P. O. ADDRESS: 75 33rd Avenue, Bu. of Comm. Fish.

A. St. Petersburg Beach (City)   B. Florida (State)   C. 33706 (Zip Code)   D. 813 360-7096 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
   - A. R&D PROFESSIONALS (Total): 7
   - B. ALL OTHER PERSONNEL (Total): 5

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   - A. INTRAMURAL (Total): $ 166.7 Thousand
   - B. EXTRAMURAL (Total): $ 55.6 Thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: The laboratory conducts studies to investigate the significance of the estuarine zone in producing and maintaining species presently comprising and potentially available to commercial fisheries and to detect the effects of natural and engineering modifications of estuaries upon biological productivity.

(06-06) East Gulf Estuarine Research

(06-06) Fishery Hydrology

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

626 8. MAJOR EQUIPMENT:

Research Vessel "Kingfish" 43 ft. This boat with a crew of one (1) is used in support of East Gulf Estuarine Research; Red-tide research.

Fish Processing Laboratory

Auto Analyzer System

9. COMMENT AND PUBLICATION REFERENCES:

Report of BCF Biological Laboratory, St. Petersburg Beach, Florida 1968 - Circular 313

10. DATE OF REPORT:
10/27/69

INSTALLATION: BIOLOGICAL LABORATORY

AGENCY OR DEPT.: INTERIOR (BU. of COMM. FISH.)

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Richard S. Shomura (Acting) A. TECHNICAL DIRECTOR:

3. LOCATION: A. Honolulu (Nearest City) B. N/A (County) C. Hawaii (State)

4. P. O. ADDRESS: 2570 Dole Street, P. O. Box 3830, Biological Lab., Bu. of Comm. Fish.

   A. Honolulu (City) B. Hawaii (State) C. 96812 (Zip Code) D. 808 946-2181 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
   - A. R&D PROFESSIONALS (Total): 23
   - B. ALL OTHER PERSONNEL (Total): 60

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   - A. INTRAMURAL (Total): $ 1.3 Million
   - B. EXTRAMURAL (Total): $ 121.0 Thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: The laboratory is conducting research with the aim of making the skipjack tuna resource available to the fishing industry. As a first step toward a larger Central Pacific harvest the laboratory is attempting to assist the Hawaiian industry increase its present catch.

(06-06) Operations Research Studies of Hawaiian Tuna Fleet.

(06-06) Population Dynamics and Life History Studies of Central Pacific Skipjack Tuna.

(06-06) Sonar Investigations of Skipjack Tuna Behavior.

(06-03) Sub-Population-Genetic Definition of Tunas.

(08-01) Oceanographic Investigations of Features that Influence Distribution in Time and Space of Tunas.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Research Vessels:

"Townsend Cromwell", 158 ft.: Carries a crew of 15 and can accommodate 8 research scientists and technicians.

Special equipment includes:

Windlass and winches; Radar; Loran; radios: CTFM sonar; underwater observation windows.

"Charles H. Gilbert", 123 ft.: Carries a crew of 11 and can accommodate 5 research scientists and technicians.

Special equipment includes:

2 echosounders; gyrocompass; radar; Loran: RDF; 3 trans. 2 rec; 2 oceano-winches; wind speed and direction indicator; observation windows in the bow.

Major function of both vessels is to support Pacific Oceanography; Tuna biology behavior and distribution.

9. COMMENT AND PUBLICATION REFERENCES:

BCF Biological Laboratory - Honolulu - Circular 306 (Brochure)

BCF Annual Report Calendar Year 1968

10. DATE OF REPORT:
10/27/69

BIOLOGICAL LABORATORY — INSTALLATION

INTERIOR (BU. of COMM. FISH.) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
   - (1) ☒ GOVERNMENT-OPERATED
   - (2) ☐ FFRDC
   - (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
   - (1) ☐ GOVERNMENT-OPERATED
   - (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Bernard E. Skud

A. TECHNICAL DIRECTOR:

3. LOCATION: A. West Boothbay Harbor (Nearest City) B. Lincoln (County) C. Maine (State)

4. P. O. ADDRESS: Biological Laboratory, Bureau of Commercial Fish.

A. West Boothbay Harbor (City) B. Maine (State) C. 04575 (Zip Code) D. 207-633-2221 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 17

B. ALL OTHER PERSONNEL (Total): 17

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 611.8 Thousand

B. EXTRAMURAL (Total): $ 18.9 Thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: The laboratory is conducting research to define more clearly the relation between inshore and offshore lobster populations. Since the North Atlantic herring is supporting an increasingly valuable fishery, laboratory scientists are seeking to explain the fluctuations of this fishery and the effects of foreign fishing on abundance.

Research Studies to determine relationships of Atlantic Herring Populations - Gulf of Maine and Contiguous Waters (06-06)

Research Studies - to determine relationships of Northern Lobster Stocks off shore and along Continental Shelf (06-06)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

630 8. MAJOR EQUIPMENT:

Research Vessels:

"Rorqual"	64 ft.
"Phalorope"	40 ft.

These two boats, each with a crew of one (1), are used in support of inshore exploration on herring and shellfish (lobster), and clam and herring studies respectively.

9. COMMENT AND PUBLICATION REFERENCES:

BCF Annual Report Calendar Year 1968.

10. DATE OF REPORT:
October 1969

BIOLOGICAL LABORATORY
INSTALLATION

INTERIOR (BU. of COMM. FISH.)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Arthur S. Merrill (Acting) A. TECHNICAL DIRECTOR:

3. LOCATION: A. Oxford (Nearest City) B. Talbot (County) C. Maryland (State)

4. P. O. ADDRESS: Biological Laboratory, Bu. of Comm. Fish.

A. Oxford (City) B. Maryland (State) C. 21654 (Zip Code) D. 301 226-5193 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
- A. R&D PROFESSIONALS (Total): 15
- B. ALL OTHER PERSONNEL (Total): 10

6. FUNDING (Approximate FY 1969 Dollar Obligation):
- A. INTRAMURAL (Total): $ 313.5 Thousand
- B. EXTRAMURAL (Total): $ 134.3 Thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: The laboratory's studies are directed toward developing and evaluating methods for growing oysters and clams to commercial size, utilizing natural estuarine areas. Strong emphasis is given to research on problems of shellfish mortalities, including life history studies identification, control of predators and the effects of environmental changes.

(06-06) Biological and Ecological to determine factors concerning shellfish mortalities.

Study of populations and distribution of surf clams in Mid-Atlantic.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

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8. MAJOR EQUIPMENT:

Research Vessel	"Alosa"	48 ft.
Work Vessel	Clam Dredge	19 ft.

The "Alosa", with a crew of one (1), is used in support of shellfish research, oyster propagation and disease studies.

9. COMMENT AND PUBLICATION REFERENCES:

BCF Annual Report Calendar Year 1968

10. DATE OF REPORT:
10/27/69

BIOLOGICAL LABORATORY
INSTALLATION

INTERIOR (BU. of COMM. FISH .)
AGENCY OR DEPT.

633

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Herbert W. Graham
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Woods Hole (Nearest City) B. Barnstable (County) C. Mass. (State)

4. P. O. ADDRESS: P. O. Box 6, Biological Laboratory, Bu. of Comm. Fish.
A. Woods Hole (City) B. Mass. (State) C. 02543 (Zip Code) D. 617 548-5123 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 18
B. ALL OTHER PERSONNEL (Total): 25

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 770.0 Thousand
B. EXTRAMURAL (Total): $ 330.0 Thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: Research programs of the laboratory are directed toward the important offshore groundfish that support New England's commercial fisheries. Particular emphasis is placed on population changes in cod, haddock, silver hake, redfish, flounder and sea scallop.

As the center of U.S. research related to the International Commission for the Northwest Atlantic Fisheries, the laboratory is responsible for carrying out research commitments of the United States in the convention area.

(06-06) Life History, Ecology & Population Dynamics of Cod, Haddock, Silver Hake, Redfish, Flounder and Sea Scallops.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Research Vessel: "Albatross IV 187 ft.

The "Albatross IV", with a crew of 19, can accommodate 16 research scientists and technicians. The "Albatross IV" is used in support of oceanography and groundfish ecology studies.

Special Equipment: Gyro and mag. compasses; electromag. log; 2 radar, RDF, Loran A; 2 trans/rec. voice, 2 EDO 6000 echo-sounders; sonar; precision graphic rec.; 2 travel winches; 1 dredge; 2 hydro, 2 BT winches; afterdeck boom.

Underwater Camera

Bathythermometer (Telerecording)

9. COMMENT AND PUBLICATION REFERENCES:

BCF Annual Report Calendar Year 1968

Woods Hole, Mass., Biological Laboratory (Brochure) - Circular 314

10. DATE OF REPORT:
10/27/69

BIOLOGICAL LABORATORY
INSTALLATION

INTERIOR (BU. OF COMM. FISH.)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Dr. Alfred Sparks
   A. TECHNICAL DIRECTOR:

3. LOCATION: A. Galveston (Nearest City) B. Galveston (County) C. Texas (State)

4. P. O. ADDRESS: Bldg. 302, Fort Crockett, Biological Laboratory (Bu. of Comm. Fish.)
   A. Galveston (City) B. Texas (State) C. 77550 (Zip Code) D. 713 763-1211 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 31
   B. ALL OTHER PERSONNEL (Total): 20

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 750.0 thousand
   B. EXTRAMURAL (Total): $ 250.0 thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research programs are designed to determine growth, survival, and movements of shrimp stock; determine the maximum yield of stocks of shrimp by deciding what size the shrimp should be when they are harvested; refine the methods developed for predicting the abundance of shrimp crops; develop commercially feasible methods for raising shrimp; determine effect of fishing and environmental variations on shrimp stocks; evaluate natural and altered shrimp nursery grounds in estuaries; determine oceanographic and bottom factors that affect the survival of shrimp.

The major research of the laboratory is conducted through the four research programs listed below.

(06-06) Shrimp Dynamics
(06-06) Estuarine Studies
(06-06) Aquaculture (Shrimp)
(08-01) Gulf Oceanography

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

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8. MAJOR EQUIPMENT:

"Tommy Box"	36 ft.	One man operates all three boats used in support of Estuarine and Shrimp research studies.
"Redfish"	29 ft.	
"Arapho"	20 ft.	

Sea Water Laboratory

Chemistry Laboratory

Spectrophometer

9. COMMENT AND PUBLICATION REFERENCES:

BCF Biological Laboratory, Galveston, Texas - (brochure) Circular 307

Annual Report 1967 - Circular 295

10. DATE OF REPORT: 2/16/70

BIOLOGICAL LABORATORY
INSTALLATION

INTERIOR (BU. OF COMM. FISH.)
AGENCY OR DEPT.

637

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Gerald B. Collins
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Seattle (Nearest City) B. King (County) C. Washington (State)

4. P. O. ADDRESS: 2725 Montlake Boulevard East, Biological Laboratory (Bu. of Comm.Fish)
A. Seattle (City) B. Washington (State) C. 98102 (Zip Code) D. 206 583-4445 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 83
B. ALL OTHER PERSONNEL (Total): 61

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 3.5 million
B. EXTRAMURAL (Total): $ 543.3 thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: The laboratory conducts research for the U. S. section of the International North Pacific Fisheries Commission. Research studies include Ecology and Population Dynamics of Pacific Salmon in the North Pacific and Bering Sea and demarsal fish species in Pacific Northwest Coastal Waters. In addition, freshwater and estuarine studies are directed toward the solution of anadromous fish-passage problems.

(08-01) Bering Sea Oceanography and Salmon Distribution Studies. The definition of major oceanographic features and the relation of salmon distribution and abundance of inshore runs.

(08-01) Studies of Groundfish Abundance and Coastal Oceanography. Provide information on distribution and abundance of demersal stocks of fish in relation to the environment; ascertain potential yields and determine methods of forecasting abundance.

(06-06) Freshwater and Estuarine Research Studies (Columbia River). Assessment of effect of water resource development on commercial fishery resources of the Columbia Basin and develop methods of counteracting adverse effects.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

638 Vessels: Miller Freeman 215 ft. These ships can accomodate 10 and 6
George B. Kelez 176 ft. scientists and technicians, respectively. The M. Freeman supports Bering Sea Oceanography and Salmon distribution studies and King Crab and Coastal Oceanography studies.
The G. B. Kelez supports offshore Salmon research.

Other equipment: Buoy platform electronics and telemtry system
Temp sensing system
Auto analyser
Fish scale reading machine

Special Equipment: Miller Freeman
1 radio trans -rec., 1 SSB trans-rec. radio; radar; radio direction finder; 2 Loran A/C; 2 trawl and access winches; 1 plankton trawl winch; 1 STD winch; 1 BT winch; 1 anchor windless; 2 capstans; 1 crane; 1-800 fath.Ross fathometer; 1 Deca radar; 1 x BT; 1 hydraulic fish gurdy.
George B. Kelez:
NW 250 w R/T; R/T trans; Emer.R/T; EDO UGN Mod. 185; Kelvin Huges/Ceres Fishmaster; Decca and Bendix radio; DX navig. Loran C; 1XBT; 1 Decca Loran A/C; 1 SSB Trans/rec; winches, etc.

9. COMMENT AND PUBLICATION REFERENCES:

Bureau of Commercial Fisheries Annual Report 1968

Fish Passage Research Report - Circular 254

Pacific Northwest Region - Circular 207

Fishery Research Vessel the Miller Freeman - Circular 261

In Sea and River - Research at the BCF Biological Laboratory, Seattle, 1966-68 - Circular 329

10. DATE OF REPORT: 2/16/70

CENTER FOR ESTUARINE AND MENHADEN RESEARCH — INSTALLATION

INTERIOR (BU. of COMM. FISH.) — AGENCY OR DEPT

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: T. R. Rice
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Beaufort (Nearest City) B. Carteret (County) C. North Carolina (State)

4. P. O. ADDRESS: Pivers Island, Bu. of Comm. Fish.
A. Beaufort (City) B. N. Carolina (State) C. 28516 (Zip Code) D. 919 728-4595 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 51
B. ALL OTHER PERSONNEL (Total): 36

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 900.0 Thousand
B. EXTRAMURAL (Total): $ 300.0 Thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: The National Center for Estuarine and Menhaden Research includes a biological laboratory and a radiobiological laboratory. The Biological Laboratory conducts research on menhaden to determine the biological and ecological factors important to the management of this fishery.

The Radiobiological Laboratory conducts studies to assess problems relating to fishery management in estuaries. Research is concerned with the flow of energy; the cycling of materials (both radioactive and stable) and the identification of food webs in the estuarine environment.

(06-06) Menhaden Research

(06-06) Estuarine Research

(06-18) Radiobiology

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

640 8. MAJOR EQUIPMENT:

Research vessel J-3486 - 43 ft.

Spectrophotometer

Analyzer System

Analog Computer Irradiator - Cobalt 60

9. COMMENT AND PUBLICATION REFERENCES:

Progress Report, Radiobiological Laboratory, Beaufort, N. C. - Circular 309

Biological Laboratory Annual Report, Beaufort, N. C. - Circular 287

10. DATE OF REPORT:
10/27/69

EXPLORATORY FISH AND GEAR RESEARCH BASE
INSTALLATION

INTERIOR (BU. of COMM. FISH.)
AGENCY OR DEPT.

641

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Benjamine F. Jones
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Juneau (Nearest City) B. N/A (County) C. Alaska (State)

4. P. O. ADDRESS: P. O. Box 1668, Bureau of Comm. Fishery
A. Juneau (City) B. Alaska (State) C. 99801 (Zip Code) D. 907 586-7233 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 6
B. ALL OTHER PERSONNEL (Total): 9

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 274.7 Thousand
B. EXTRAMURAL (Total): $ 91.5 Thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: To plan and conduct exploratory fishing programs to locate and determine the extent of new fishing grounds and the size and character of the resource. Also, to design, test and develop new types of fishing gear and equipment.

(06-06) Bottomfish Explorations.

(06-06) Technical Assistance to Industry.

(06-06) Ocean Engineering.

(06-06) Resource Survey - Gulf of Alaska and Bering Sea.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

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8. MAJOR EQUIPMENT:

Exploratory Fishing Vessel "Oregon" 100 ft.

The "Oregon" has a crew of seven (7) and can accommodate four (4) research scientists and technicians. The ship supports bottom surveys for halibut; patrol work; observations of foreign fishing activities in the Bering Sea.

9. COMMENT AND PUBLICATION REFERENCES:

BCF Annual Report Calendar Year 1968

10. DATE OF REPORT:
10/27/69

EXPLORATORY FISHING AND GEAR RESEARCH BASE
INSTALLATION

INTERIOR (BU. OF COMM.FISH.)
AGENCY OR DEPT.

643

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Keith A. Smith
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Gloucester (Nearest City) B. Essex (County) C. Mass. (State)

4. P. O. ADDRESS: State Fish Pier; Exploratory Fish. & Gear Rsch. Base (Bu. Comm. Fish.)
A. Gloucester (City) B. Mass (State) C. 01930 (Zip Code) D. 617-283-6554 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 8
B. ALL OTHER PERSONNEL (Total): 18

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 311.4 Thousand
B. EXTRAMURAL (Total): $ 133.4 Thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: Plan and conduct exploratory fishing programs to locate and determine the extent of new fishing grounds and the size and character of the resource. Also, to design, test and develop new types of fishing gear and equipment.

(06-06) Exploratory surveys in New England waters to assess groundfish, pelagic, and shellfish resources.

(13-10) Evaluate midwater trawling technique for pelagic species; conduct studies to mechanize and automate trawl gear and handling systems.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

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8. MAJOR EQUIPMENT:

Exploratory Fishing Vessel: "Delaware II" 156 ft.

The "Delaware II" has accommodations for six (6) research scientists and technicians. The ship is used in support of exploratory fishing and biological studies on ground fishes and sea scallops; gear research.

Underwater Camera

9. COMMENT AND PUBLICATION REFERENCES:

BCF Annual Report Calendar Year 1968

Design of the M/V Delaware - Circular 273

10. DATE OF REPORT: 2/16/70

EXPLORATORY FISH. AND GEAR RESEARCH BASE
INSTALLATION

INTERIOR (BU. of COMM. FISH.)
AGENCY OR DEPT

645

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: M. R. Greenwood
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Ann Arbor (Nearest City) B. Washtenaw (County) C. Michigan (State)

4. P. O. ADDRESS: 5 Research Drive, Bu. of Comm. Fish.
A. Ann Arbor (City) B. Michigan (State) C. 48103 (Zip Code) D. 313 663-8541 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 10
B. ALL OTHER PERSONNEL (Total): 2

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 296.3 Thousand
B. EXTRAMURAL (Total): $ 74.0 Thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: To plan and conduct exploratory fishing programs to locate and determine the extent of new fishing grounds and the size and character of the resource. Also, to test and develop new types of fishing gear and equipment.

(06-06) Exploration Activities Great Lakes and Other Inland Waters to Assess Qualitative and Quantitative Status of Commercial Fish Stocks.

(13-10) Gear Research development on High Rise Trawls, Bottom Electro-Trawls Shore Seines and Surface Trawl Seines.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

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8. MAJOR EQUIPMENT:

Exploratory Fishing Vessels:

"Kaho"	65 ft.	The "Kaho" with a total complement of three (3) is located at Saugatuck, Michigan, and is used in support of exploratory fishing and gear research on industrial fishes - Chubs, Alewives, Sheepshead, Gizzard Shad and Smelt.
"Hiodon"	45 ft.	

The "Hiodon" has a crew of one (1) and is located at Mobridge, South Dakota, in support of reservoir fish studies.

No special research equipment other than for fishing and navigation.

9. COMMENT AND PUBLICATION REFERENCES:

BCF Annual Report Calendar Year 1968.

Bottom Trawl Explorations in Southern Lake Michigan - Circular 301

10. DATE OF REPORT:
2/16/70

EXPLORATORY FISH. AND GEAR RESEARCH BASE
INSTALLATION

INTERIOR (BU. of COMM. FISH.)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Harvey R. Bullis
   A. TECHNICAL DIRECTOR:

3. LOCATION: A. Pascagoula (Nearest City) B. Jackson (County) C. Mississippi (State)

4. P. O. ADDRESS: 239 Frederic Street, P. O. Drawer 1207, Bureau of Comm. Fish.
   A. Pascagoula (City) B. Mississippi (State) C. 39567 (Zip Code) D. 601 762-4591 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 24
   B. ALL OTHER PERSONNEL (Total): 27

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 551.3 Thousand
   B. EXTRAMURAL (Total): $ 183.8 Thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: To plan and conduct exploratory fishing programs to locate and determine the extent of new fishing grounds and the size and character of the resource. Also to design, test and develop new types of fishing gear and equipment.

(06-06) Surveys of Gulf Pelagic Fishes

(06-06) Shrimp Explorations-Carribean Sea

(13-10) Gear Research-Sardine-like Fishes

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

648 8. MAJOR EQUIPMENT:

Exploratory Fishing Vessels:

"Oregon II" 170 ft.
"George M. Bowers" 73 Ft.

2 Aerial Cameras

1 Television Camera

Underwater Camera

The "Oregon II" with a crew of fourteen (14) can accommodate ten (10) research scientists and technicians. The ship supports exploratory fishing and gear research on commercial species; gulf and caribbean oceanography.

9. COMMENT AND PUBLICATION REFERENCES:

Progress in Exploratory Fishing & Gear Research in Region 2 - Circulars
265
267

This installation has the support of the Field Station at Brunswick, Georgia. (CF. report - Exploratory Fishing and Gear Research Field Station)

10. DATE OF REPORT:
10/27/69

EXPLORATORY FISH AND GEAR RESEARCH BASE — INSTALLATION

INTERIOR (BU. of COMM. FISH.) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Dayton L. Alverson
   A. TECHNICAL DIRECTOR:

3. LOCATION. A. Seattle (Nearest City) B. King (County) C. Washington (State)

4. P. O. ADDRESS: 2725 Montlake Blvd., E., Bu. of Comm. Fish.
   A. Seattle (City) B. Washington (State) C. 98102 (Zip Code) D. 206 583-7729 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 19
   B. ALL OTHER PERSONNEL (Total): 11

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 326.9 Thousand
   B. EXTRAMURAL (Total): $ 238.4 Thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Plan and conduct exploratory fishing programs to locate and determine the extent of new fishing grounds and the size and character of the resource. Also, design, test and develop new types of fishing gear and equipment.

(06-06) Resource Assessment - Pacific Saury
(06-06) Hake, Pacific Saury - Subtidal Clams
(13-10) Gear Research - Shrimp Trawls and Separator Trawls
(13-10) Gear Research Purse Seining for Pacific Saury

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

650 8. MAJOR EQUIPMENT:

Exploratory Fishing Vessel: "John N. Cobb" Length 93 ft.

Echo Sounder

Underwater Television System

Sonar Auto Unit

Oscillator Audio

The "John N. Cobb" with a complement of seven (7) personnel has accommodations for two (2) research scientists and technicians. The ship is used in support of pelagic and bottom fish, shrimp and crabs, and gear research studies.

9. COMMENT AND PUBLICATION REFERENCES:

Pacific Northwest Region (BCF) - Circular 207

Bureau of Commercial Fisheries Annual Report 1967-68

10. DATE OF REPORT:
2/16/70

EXPLORATORY FISHING & GEAR RESEARCH FIELD STATION — INSTALLATION

INTERIOR (BU. OF COMM. FISH.) — AGENCY OR DEPT

651

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Robert Cummins
   A. TECHNICAL DIRECTOR:

3. LOCATION: A. Brunswick (Nearest City) B. Glynn (County) C. Georgia (State)

4. P. O. ADDRESS: Federal Bldg., Room 308, P.O. Box 280, Bureau of Comm. Fish.
   A. Brunswick (City) B. Georgia (State) C. 31520 (Zip Code) D. 912-265-2080 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 5
   B. ALL OTHER PERSONNEL (Total): 3

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 164.9 Thousand
   B. EXTRAMURAL (Total): $ 50.2 Thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: To plan and conduct exploratory fishing programs (in coordination with the Exploratory Fishing and Gear Research Base at Pascagoula, Miss.) to determine the extent of new fishing grounds and the size and character of the resourse. Also to design, test and develop new types of fishing gear and equipment.

(06-06) Explorations - Caribbean Sea and Tropical Atlantic.

(06-06) Delineation - Calico Scallop Resource.

(06-06) Explorations - Coastal Pelagic Species, South Atlantic Coast

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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652 8. MAJOR EQUIPMENT:

Vessels and Major Equipment used in conjunction with Pascagoula Exploratory Fishing Base.

9. COMMENT AND PUBLICATION REFERENCES:

See Reference for Pascagoula Fishing Base.

10. DATE OF REPORT:
2/16/70

FISHERY OCEANOGRAPHIC CENTER
INSTALLATION

INTERIOR (BU. of COMM. FISH.)
AGENCY OR DEPT.

653

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Alan R. Longhurst
A. TECHNICAL DIRECTOR:

3. LOCATION: A. La Jolla (Nearest City) B. San Diego (County) C. California (State)

4. P. O. ADDRESS: 8604 La Jolla Shores Drive, P. O. Box 271, Bu. of Comm. Fish.
A. La Jolla (City) B. California (State) C. 92037 (Zip Code) D. 714 453-2820 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 31
B. ALL OTHER PERSONNEL (Total): 49

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1.2 Million
B. EXTRAMURAL (Total): $ 640.0 Thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: The primary goals of the Center are:

(1) To evaluate potential fishery resources
(2) To stimulate development of new and underutilized marine resources
(3) To maintain the yield of the fisheries at a high level of productivity
(4) To aid in improving the efficiency of the U. S. fishing fleet so that it can compete successfully with foreign fisheries.

(06-06) Research Studies - Migration, Distribution, Schooling Behavior of Temp. and Tropical Tunas.

(06-06) Use of CTM Sonar for Tracking Fish Schools.

(08-10) Oceanographic Studies of Seasonal Changes over a Large Part of Eastern Pacific Ocean.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Research Vessels:

"David Starr Jordan"	171 ft.
"Miss Behavior"	63 ft.

Automatic Chemical Analyzing System

Underwater Television System

Salinograph-Thermograph

Digital Data Logger

The "David Starr Jordan" has a crew of sixteen (16) and accommodations for ten (10) research scientists and technicians. The ship supports research studies on Pacific Sardine; abundance and life history studies on Tropical Tunas and other species.

Special Equipment: Gyro and mag compasses; RDF; radar Loran A/C; 4 trans. and rec. SSB; CW, voice MF, HR, EM radio teletype; 2 echosounders and rec. EDO fath. aux-radio, CB; trawling and hydro to 35,000'; A frame; sonar; X-ray room.

9. COMMENT AND PUBLICATION REFERENCES:

BCF Fishery Oceanographic Center, La Jolla, California - Circular 303
Annual Report 1968

Circular 292 - Brochure

Circular 232 - Brochure

10. DATE OF REPORT:
10/27/69

FOOD SCIENCE LABORATORY
INSTALLATION

INTERIOR (BU. OF COMM. FISH.)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Maurice E. Stansby
   A. TECHNICAL DIRECTOR:

3. LOCATION: A. Seattle (Nearest City) B. King (County) C. Washington (State)

4. P. O. ADDRESS: 2725 Montlake Blvd., E., Food Science Laboratory
   A. Seattle (City) B. Washington (State) C. 98102 (Zip Code) D. 206-583-7737 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 6
   B. ALL OTHER PERSONNEL (Total): 1

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 183.0 Thousand
   B. EXTRAMURAL (Total): $ 25.0 Thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: The laboratory's mission is to gather biochemical information on oxidative alterations in fish and fishery products and to develop means to alter or prevent the oxidation reactions.

(06-08) Determination of the mechanism of oxidation in fishery products of low moisture content and preserved fishery products.

(06-08) Improvement of methods of quantitative assays for oxidation.

(06-08) Development of assay procedure for detection and quantification of Dimethylnitrosamine (DMNA), a Carcinogentic compound in smoked fish.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

No Major Equipment

9. COMMENT AND PUBLICATION REFERENCES:

Nutritional Value of Fish Oils as Animal Feeds, Circular 281

Hypocholesterolemic Effects of Marine Oils, Circular 285

10. DATE OF REPORT:
10/27/69

GREAT LAKES FISHERY LABORATORY
INSTALLATION

INTERIOR (BU. of COMM. FISH.)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: George Y. Harry
   A. TECHNICAL DIRECTOR:

3. LOCATION: A. Ann Arbor (Nearest City) B. Washtenaw (County) C. Michigan (State)

4. P. O. ADDRESS: 1451 Green Road, P. O. Box 640, Bu. of Comm. Fishery
   A. Ann Arbor, (City) B. Mich. (State) C. 48107 (Zip Code) D. 313 663-8541 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 66
   B. ALL OTHER PERSONNEL (Total): 27

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 1.4 Million
   B. EXTRAMURAL (Total): $ 360.0 Thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: The laboratory's mission is to understand the ecological relationships of the Great Lakes; the instability of fish stocks caused by sea lamprey predation; dominance of alewives; introduction of exotic species, such as coho salmon; and the enrichment of the aquatic environment.

(06-06) Development and Application of Control Methods for Reducing Sea Lamprey Population.

(06-06) Research Studies of Fish Stocks in Lakes Erie, Michigan, Superior and Huron.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Research Vessels:

"Cisco"	60 ft.	located at Saugatuck, Michigan, crew of 3.
"Siscowet"	52 ft.	located at Ashland, Wisconsin, crew of 3.
"Musky II"	45 ft.	located at Sandusky, Ohio, crew of 2.

Respirometer

Gas Chromatograph

9. COMMENT AND PUBLICATION REFERENCES:

Commercial Fisheries Research and Development in the Great Lakes Region - Cir. 147

BCF Great Lakes Laboratory, Ann Arbor (Brochure) - Circular 319

10. DATE OF REPORT:
10/27/69

MARINE MAMMAL RESEARCH LABORATORY — INSTALLATION
INTERIOR (BU. OF COMM. FISH.) — AGENCY OR DEPT

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Ford Wilke
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Seattle (Nearest City) B. King (County) C. Washington (State)

4. P. O. ADDRESS: Sandpoint Naval Air Station, Bldg. 192, Marine Mammal Rsch. Laboratory
A. Seattle (City) B. Washington (State) C. 98155 (Zip Code) D. 206 523-0550 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 9
B. ALL OTHER PERSONNEL (Total): 3

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 266.4 thousand
B. EXTRAMURAL (Total): $ 66.6 thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: The Laboratory conducts research studies to determine the optimum harvest, the effect of limited pelagic sealing and the ecological limits of the fur seal resource. This research is conducted in a joint research program of the North Pacific Fur Seal Commission (U.S., U.S.S.R., Canada, & Japan)

Studies are also conducted for the International Whaling Commission on the biology and ecology of several species of whales to serve as management tools.

(06-06) Fur Seal Biology and Ecology. Identification and measurement of effects of population changes on harvest, forecasting future populations, and determining relation of fur seals to other living resources.

(06-06) Whale Biology and Ecology. Studies aimed at obtaining information on reproductive cycle, growth rate, age of sexual maturity and sex and age distribution during migrations.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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660 8. MAJOR EQUIPMENT:

No major equipment

9. COMMENT AND PUBLICATION REFERENCES:

Fur Seal Industry of the Pribilof Islands, Circular 275

The Northern Fur Seal, Circular 169

Fur Seal Investigations, 1966, Special Scientific Report: Fisheries 584

10. DATE OF REPORT: 2/16/70

NATIONAL CENTER FOR FISH PROTEIN — INSTALLATION

INTERIOR (BU. OF COMM. FISH.) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Roland A. Finch
   A. TECHNICAL DIRECTOR:

3. LOCATION: A. College Park (Nearest City) B. Prince Georges (County) C. Maryland (State)

4. P. O. ADDRESS: National Center for Fish Protein (Bu. of Comm. Fish.)
   Regent Drive, University of Maryland P. O. Box 128
   A. College Park (City) B. Maryland (State) C. 20740 (Zip Code) D. 301 ~~202~~-927-5800 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 31
   B. ALL OTHER PERSONNEL (Total): 23

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 1,588 Million
   B. EXTRAMURAL (Total): $ 337 Million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: The mission of the National Center for Fish Protein Concentrate is to develop commercially feasible processes for production of Fish Protein Concentrate including formulation and administration of Contracts for design of FPC plants and to coordinate FPC activities with U.S. AID.

(06-08) Research studies to improve the FPC process and to incorporate it in a variety of foods.

(06-08) Development of a process for conversion of fatty fish to FPC.

(06-08) Development of Fish Meal Nutritional Quality.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Breading and Batter Machine

Refrigeration System

Screw Press

9. COMMENT AND PUBLICATION REFERENCES:

BCF Annual Report Calendar Year 1968

Effective Sanitation in Smoked Fish Plants - Circular 259

10. DATE OF REPORT:
2/16/70

OCEAN RESEARCH LABORATORY
INSTALLATION

INTERIOR (BU. of COMM. FISH.)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Oscar E. Sette
   A. TECHNICAL DIRECTOR:

3. LOCATION: A. Palo Alto (Nearest City) B. Alameda (County) C. California (State)

4. P. O. ADDRESS: South Rotunda, Stanford Museum, Bu. of Comm. Fish.
   A. Stanford (City) B. California (State) C. 94305 (Zip Code) D. 415 322-3164 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 4
   B. ALL OTHER PERSONNEL (Total): 2

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 83.1 Thousand
   B. EXTRAMURAL (Total): $ 35.5 Thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: The laboratory is engaged in the study of ocean-wide, medium term changes in the oceanographic conditions in the Pacific Ocean, the processes that cause them, and the effects they have on the abundance of Pacific marine fish populations.

(08-10) Preparation of an Atlas of North Pacific Sea Surface Temperatures Covering a 14 year period.

(08-10) Studies to Evaluate feasibility of Use of Commercial Maritime Vessels For Use in Oceanographic Data Collection and Transmission.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Bathythermograph System

9. COMMENT AND PUBLICATION REFERENCES:

BCF Annual Report Calendar Year 1968

10. DATE OF REPORT:
10/27/69

RESEARCH VESSELS
INSTALLATION

INTERIOR (BUR. COMM. FISH.)
AGENCY OR DEPT.

665

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Harold E. Crowther*
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Washington (Nearest City) B. (County) C. D. C. (State)

4. P. O. ADDRESS: Bureau of Commerical Fisheries, Dept. of the Interior

A. Washington (City) B. D. C. (State) C. 20240 (Zip Code) D. 202-343-4993 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): *1
B. ALL OTHER PERSONNEL (Total):

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ *2
B. EXTRAMURAL (Total): $

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

*3 The following is a summary listing of Bur. of Comm. Fish. major research vessels attached to individual research installations. Following the name of the vessel, there is reported the parent organization, the total scientific and technical personnel for whom there are accommodations, and major R&D functions of the parent installation:

1) MILLER FREEMAN; Biological Laboratory, Seattle, Washington 98102; Personnel-10; Bering Sea Oceanography and Salmon distribution studies, King Crab studies and Coastal Oceanography.

2) GEORGE B. KELEZ; Biological Laboratory, Seattle, Washington 98102; Personnel-6; Offshore Salmon research.

3) JOHN N. COBB; Exploratory Fishing & Gear Research Base, Seattle, Washington; Personnel-2; Exploratory fishing for pelagic and bottom fish, shrimp and crabs; gear research.

4) TOWNSEND CROMWELL; Biological Laboratory, Honolulu, Hawaii; Personnel-8; Pacific Oceanography; Tuna biology behavior and distribution.

5) CHARLES H. GILBERT; Biological Laboratory, Honolulu, Hawaii; Personnel-5; Pacific Oceanography, Tuna biology behavior and distribution.

6) OREGON; Exploratory Fishing and Gear Research Base, Juneau, Alaska; Personnel-4; Bottom surveys for halibut; patrol work; observations on foreign fishing activities Bering Sea.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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7) DELAWARE II; Exploratory Fishing and Gear Research Base, Gloucester, Mass.; Personnel-6; Exploratory fishing and biological studies on ground fishes and sea scallops; gear research.

8) OREGON II; Exploratory Fishing and Gear Research Base, Pascagoula, Miss.; Personnel-10; Exploratory Fishing and Gear Research on Commercial Species, Gulf and Carribean-Oceanography.

9) ALBATROSS IV; Biological Laboratory, Woods Hole, Mass.; Personnel-16; Oceanography & Groundfish Ecology Studies.

10) DAVID STARR JORDAN; Fishery Oceanographic Center, La Jolla, California; Personnel-10; Research studies on Pacific Sardine; abundance and life history studies on Tropical Tunas and other species.

8. MAJOR EQUIPMENT:

Refer to detailed statement for the parent organization installation report.

9. COMMENT AND PUBLICATION REFERENCES:

*For information about the individual vessel not supplied above or the respective parent organization report, inquiry should be addressed to the installation director.

*1 - Not applicable
*2 - " "
*3 - Refer to individual parent installation report for additional information

10. DATE OF REPORT: 3.17.70

SYSTEMATIC'S LABORATORY-TAXONOMY
INSTALLATION

INTERIOR (BUR. OF COMM. FISH.)
AGENCY OR DEPT.

667

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Daniel M. Cohen   A. TECHNICAL DIRECTOR:

3. LOCATION: A. Washington (Nearest City)   B. (County)   C. D. C. (State)

4. P. O. ADDRESS: Systematic's Laboratory, Museum of Natural History, 10th and Constitution Ave. N. W.

A. Washington (City)   B. D. C. (State)   C. 20242 (Zip Code)   D. 202-381-5749 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 5
B. ALL OTHER PERSONNEL (Total): 3

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 130.0 Thousand
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: The Laboratory conducts Taxonomic Research on Commercially Important Marine and Freshwater Species as a basis for Identifying and Evaluating Fishery Resources.

Major Research Projects:

(06-06) A study on the systematics of scombriod fishes, particularly the large, Tuna-like forms.

(06-06) Studies on Continental Slope and abyssal fishes of the Suborder Ophidioidea.

(06-06) Studies of the mainly fresh-water fish family percidae.

(06-06) Studies of bivalve mollusks of the family Tellinidae.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

668

8. MAJOR EQUIPMENT:

No Major Equipment

9. COMMENT AND PUBLICATION REFERENCES:

BCF Annual Report Calendar Year 1968

10. DATE OF REPORT: 10/27/69

TECHNOLOGICAL LABORATORY
INSTALLATION

INTERIOR (BU. OF COMM. FISH.)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Murray L. Hayes

A. TECHNICAL DIRECTOR:

3. LOCATION: A. Ketchikan (Nearest City) B. N/A (County) C. Alaska (State)

4. P. O. ADDRESS: 622 Mission Street, Technological Laboratory (Bu. of Comm. Fish.)

A. Ketchikan (City) B. Alaska (State) C. 99901 (Zip Code) D. Canal 5-3425 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 7

B. ALL OTHER PERSONNEL (Total): 3

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 292.5 Thousand

B. EXTRAMURAL (Total): $ 0 Thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: The laboratory program is oriented to evaluate existing fishing systems, to develop recommended systems handling changes and to develop and demonstrate prototype mechanical innovations. Programs are being conducted to determine the chemical content of various fishery products indigenous to Alaskan waters.

(06-08) A systems engineering study is continuing to evaluate raw materials, processes, equipment, and products of shrimp, from the time the net is on board the vessel until primary processing is complete.

(06-08) Research is being conducted to determine chemical content, nutritive value and alternative product use.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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670 8. MAJOR EQUIPMENT:

No Major Equipment

9. COMMENT AND PUBLICATION REFERENCES:

BCF Annual Report Calendar Year 1968

10. DATE OF REPORT:
1o/27/69

TECHNOLOGICAL LABORATORY
INSTALLATION

INTERIOR (BU. of COMM. FISH.)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Ladell Crawford (Acting)
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Terminal Island (Nearest City) B. Los Angeles (County) C. California (State)

4. P. O. ADDRESS: 748 Tuna Street,, Bureau of Comm. Fish.
A. Terminal Island (City) B. California (State) C. 90731 (Zip Code) D. 213 831-9281 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 1
B. ALL OTHER PERSONNEL (Total): 1

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 45.5 Thousand
B. EXTRAMURAL (Total): $ 19.5 Thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: The laboratory's efforts are directed to the development of improved methods for handling tuna that will lead to maintaining a high quality end-product.

(06-08) Development of Techniques for Measuring Tuna Quality.

(06-08) Investigation of Basic Quality Problems of Skipjack Tuna.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

No Major Equipment

9. COMMENT AND PUBLICATION REFERENCES:

BCF Annual Report Calendar Year 1968

10. DATE OF REPORT:
10/27/69

TECHNOLOGICAL LABORATORY
INSTALLATION

INTERIOR (BU. of COMM. FISH.)
AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: John A. Holston
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Gloucester (Nearest City) B. Essex (County) C. Massachusetts (State)

4. P. O. ADDRESS: Emerson Avenue, Technological Laboratory (Bu. of Comm. Fish.)
A. Gloucester (City) B. Massachusetts (State) C. 01930 (Zip Code) D. 617-283-5806 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 25
B. ALL OTHER PERSONNEL (Total): 7

6. FUNDING (Approximate FY 1969 Dollar Obligation)
A. INTRAMURAL (Total): $ 436 Thousand
B. EXTRAMURAL (Total): $ 176 Thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: The laboratory's mission is to develop or aid in the development of inexpensive methods and equipment for improving the economic posture and maintaining the quality of the products of the New England fishing industry.

(06-03) Develop means of recovery and enumerate potential uses for biological material currently discarded at sea by segments of the United States fishery (for instance pharmaceuticals and enzymes).

(06-08) Explore chemical and chemical-physical means of preservation of fishery products (formed plastic packages, brine salt freeze dried product).

(06-08) Develop standards and specifications for catfish, scallops, salmon, and sardines.

(13-10) Carry out a trawl fishery improvement program through prototype mechanical innovation (for instance shrimp cooking aboard ship, and vacuum eviscerating), which are being developed and will be demonstrated in an industrial situation for handling fish at sea.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Auto Analyzer

Analytical Ultra Centrifuge

Gas Chromatograph

Photometer

Spectrometer

Spectrophotometer

9. COMMENT AND PUBLICATION REFERENCES:

BCF Annual Report Calendar Year 1968

Improving the Quality of Whiting - Circular 175

10. DATE OF REPORT:
10/27/69

TECHNOLOGICAL LABORATORY — INSTALLATION

INTERIOR (BU. OF COMM. FISH.) — AGENCY OR DEPT

675

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: H. L. Seagran
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Ann Arbor (Nearest City) B. Washtenaw (County), C. Michigan (State)

4. P. O. ADDRESS: 1415 Green Road, P.O. Box 640, Technological Laboratory
A. Ann Arbor (City) B. Michigan (State) C. 48107 (Zip Code) D. 313-663-8541 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 11
B. ALL OTHER PERSONNEL (Total): 10

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 273.7 Thousand
B. EXTRAMURAL (Total): $ 0 Thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: The laboratory conducts work in two major areas:

1. To eliminate the increasing public health hazard from botulism poisoning and other microbiological pathogenic factors associated with production of fishery products.
2. Technical assistance to industry to insure high quality products are marketed and at competitive prices.

(06-08) Studies to prevent Botulism Outgrowth and Toxicity in Salmon and Sablefish Products.

(06-08) Determination of Extent and Sources of Salmonella Contamination in Smoked Fish and Pond Reared Catfish.

(06-08) Technical Assistance to Industry in Developing Product Standards.

(06-08) Studies to determine the health risk due to bacterial (shigells, staphylococci, and erupipeloid) contamination of pond-cultured catfish and to define means of control.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Amino Acid Analyzer

Blender - Solids Processor

Gas Chromatograph

Vacuum Drum Dryer

Freeze Drying Unit

Mill-Jet-O-Mixer (Fluid Energy Processing Equipment)

9. COMMENT AND PUBLICATION REFERENCES:

BCF Annual Report Calendar Year 1968

10. DATE OF REPORT:
10/27/69

TECHNOLOGICAL LABORATORY
INSTALLATION

INTERIOR (BU. of COMM. FISH.)
AGENCY OR DEPT.

677

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Travis D. Love
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Pascagoula (Nearest City) B. Jackson (County) C. Mississippi (State)

4. P. O. ADDRESS: 239 Frederic Street, P.O. Drawer 1207, Technological Laboratory
A. Pascagoula (City) B. Mississippi (State) C. 39567 (Zip Code) D. 601-762-4591 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 8
B. ALL OTHER PERSONNEL (Total): 4

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 150.0 Thousand
B. EXTRAMURAL (Total): $

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: The laboratory's mission is to develop methods to maintain quality and improve processing of Gulf species of fish and to obtain information on chemical composition, contaminants and nutritive value:

(06-08) Develop techniques to aid industry to produce, process, handle, package and market a more consistently high quality product at lowest cost consistent with the high quality.

06-08) Develop chemical composition, insecticide contamination, and nutritive value data of developing fishery resources of the Gulf of Mexico.

(06-08) Provide general consulting fishery technical assistance to industry particularly with respect to compliance with State and Federal regulations.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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678 8. MAJOR EQUIPMENT:

Amino Acid Analyzer

Chromatograph

Spectrophotometer

9. COMMENT AND PUBLICATION REFERENCES:

Sanitation Guidelines for the Breaded Shrimp Industry - Circular 308

10. DATE OF REPORT:
10/27/69

TECHNOLOGICAL LABORATORY
INSTALLATION

INTERIOR (BUR. OF COMM. FISH.)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Maynard Steinberg
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Seattle (Nearest City) B. King (County) C. Washington (State)

4. P. O. ADDRESS: Technology Laboratory, Bureau of Comm. Fish, 2725 Montlake Blvd. E
A. Seattle (City) B. Wash. (State) C. 98102 (Zip Code) D. 206-583-7749 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 23
B. ALL OTHER PERSONNEL (Total): 7

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 557.5 Thousand
B. EXTRAMURAL (Total): $ 85.0 Thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: The laboratory's mission is to develop diversified uses for fishery products, methods for total use of resource base, new fishery products, processing and handling mechanical innovations and methods for maintaining quality of fish and fishery products.

Methods of manufacture of Fish Protein Concentrate
Diversified Uses of Fish Oil

Quality maintenance of Pacific scallops and Groundfish.

New Product forms of Pacific Groundfish.

Mechanical innovations in shipboard handling of Pacific scallops.

(06-08 Biological Sciences, Food, Processing)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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680 8. MAJOR EQUIPMENT:

Centrifuge

Centrifugal Separator

Gas Chromatograph

Spectrometer System

Spectrophometer (Recording)

Dryer Food Freeze

9. COMMENT AND PUBLICATION REFERENCES:

Guide to Bureau of Commercial Fisheries Laboratory, Seattle, Washington - Circular 316

Pacific Northwest Region - BCF Circular 207

10. DATE OF REPORT:
10/27/1969

TROPICAL ATLANTIC BIOLOGICAL LABORATORY
INSTALLATION

INTERIOR (BU. of COMM. FISH.)
AGENCY OR DEPT

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Carl J. Sinderman
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Miami (Nearest City) B. Dade (County) C. Florida (State)

4. P. O. ADDRESS: 75 Virginia Beach Drive, Bu. of Comm. Fish.
A. Miami (City) B. Florida (State) C. 33149 (Zip Code) D. 305 361-5761 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 25
B. ALL OTHER PERSONNEL (Total): 23

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 825.0 Thousand
B. EXTRAMURAL (Total): $ 275.0 Thousand

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

MISSION: The laboratory conducts research to provide the knowledge needed to develop and apply sound conservation policies, particularly for Atlantic tunas and to assist the developing nations bordering the tropical Atlantic to increase the yield of marine protein food resources in adjacent oceanic areas.

(06-06) Atlantic Tuna Research

(06-06) Calico Scallop Research

(08-01) Oceanographic Studies-Tropical Atlantic

(06-03) Investigation of Systematics of Clupeoid and Scombriod fishes

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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8. MAJOR EQUIPMENT:

Research Vessel "Undaunted" Length 143 ft.

(2) Salinity/Temp./Depth Systems

Plankton Sampler

Water Sampler

Calculating System

Digital Data Acquisition System

9. COMMENT AND PUBLICATION REFERENCES:

Tropical Atlantic Biological Laboratory BCF (Brochure) - Circular 305

BCF Annual Report 1967-68

10. DATE OF REPORT:
10/27/69

COAL RESEARCH CENTER
INSTALLATION

INTERIOR (BU. of MINES)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Richard C. Corey
A. TECHNICAL DIRECTOR: Richard C. Corey

3. LOCATION: A. Pittsburgh (Nearest City) B. Allegheny (County) C. Pennsylvania (State)

4. P. O. ADDRESS: Pittsburgh Coal Research Center, 4800 Forbes Avenue
A. Pittsburgh (City) B. Pennsylvania (State) C. 15213 (Zip Code) D. 412-892-2400 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 90
B. ALL OTHER PERSONNEL (Total): 150

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 3.3 million
B. EXTRAMURAL (Total): $ 0.7 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Coal Conversion to Electricity (21-02 Combustion; 20-09 Plasma Physics-magnetohydronamics research)

Synthetic Fuels From Coal (10-01 Conversion-hydrogenation of coal to liquids, novel coal liquefaction methods, pipeline gas from coal)

Coal Science and Analysis (07-02 Inorganic Chemistry-coal analysis;
07-03 Physical Chemistry - catalysis, chemical properties of coal;
07-05 Radiation Chemistry - laser irradiation of coal and related materials, reactions in corona, radiofrequency, and microwave discharges;
20-12 Solid State Physics - Physical properties of coals and carbons)

Special Uses of Coal (07-01 Chemical Engineering - coal carbonization;
07-03 Organic Chemistry - reactions of coal, chemicals from coal)

Coal Preparation (07-01 Chemical Engineering - removal of pyrite from coal)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

1) Pilot plant for combustion improvement research, 500-pound per hour capacity.

2) Pilot plant for research on removal of air pollutants from stack gas emissions.

3) Vortex incinerator pilot plant for municipal wastes.

4) Coal gasification and high-pressure coal hydrogenation pilot plants.

5) Spectrometric, chromatographic, X-ray, and electron microscopic facilities for analysis of coal, and coal derived liquids, solids, and gases.

9. COMMENT AND PUBLICATION REFERENCES:

1) Review of Bureau of Mines Coal Program, 1968 Bureau of Mines Information Circular 8416, June 1969.

2) Laboratory Brochure: Bureau of Mines Pittsburgh - Bruceton Facilities, U. S. Department of the Interior.

10. DATE OF REPORT: 10/21/69

COAL RESEARCH CENTER	INTERIOR (BU. of MINES)
INSTALLATION	AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: James W. Eckerd   A. TECHNICAL DIRECTOR: James W. Eckerd

3. LOCATION: A. Morgantown (Nearest City)   B. Monongalia (County)   C. West Virginia (State)

4. P. O. ADDRESS: Morgantown Coal Research Center, P. O. Box 880

A. Morgantown (City)   B. West Virginia (State)   26505 (Zip Code)   D. 304-296-3227 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 45
B. ALL OTHER PERSONNEL (Total): 95

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 2.2 million
B. EXTRAMURAL (Total): $

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Coal conversion to Electricity (21-02 Combustion - fluidized combustion of coal, electrostatic precipitation, utilization of solid wastes from combustion)

Synthetic Fuels From Coal (10-01 Conversion Techniques - pressurized gas producer, coal gasification, liquid fuels from coal)

Coal Science and Analysis (07-02 Inorganic Chemistry - minerals and sulfur modes in coal, 07-05 Radiation Chemistry-nuclear methods of analysis)

Coal Preparation (07-01 Chemical Engineering - removal of pyrite from coal by dry methods)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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8. MAJOR EQUIPMENT:

1) Pressurized gas producer pilot plant

2) Pilot plant for fluidized-bed combustion of coal

3) Pilot plant for fluidized-bed gasification of coal

4) Radiation laboratory for studying nuclear methods of analysis

5) Modern spectrometric facilities for research as will as service functions.

9. COMMENT AND PUBLICATION REFERENCES:

1) Review of Bureau of Mines Coal Program, 1968, Bureau of Mines Information Circular 8416, June 1969

2) Laboratory Brochure: Coal Research---Helping Coal Help You, Morgantown Coal Research Center

10. DATE OF REPORT: 10/22/69

COAL RESEARCH LABORATORY
INSTALLATION

INTERIOR (BU. of MINES)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: James L. Elder
A. TECHNICAL DIRECTOR: James L. Elder

3. LOCATION: A. Grand Forks (Nearest City) B. Grand Forks (County) C. North Dakota (State)

4. P. O. ADDRESS: Box 8213, University Station, Coal Research Laboratory
A. Grand Forks (City) B. North Dakota (State) C. 58201 (Zip Code) D. 701-774-6324 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 18
B. ALL OTHER PERSONNEL (Total): 18

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 0.6 million
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Coal Conversion to Electricity (21-02 Combustion of lignite)

Special Uses of Coal (07-01 Chemical Engineering - coal carbonization; 07-02 analysis of coal)

Coal Preparation (07-01 Chemical Engineering - coal drying and storage)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

1. Fixed-bed pressure coal gasification pilot plant
2. Experimental coke oven for carbonizing 500-pound charges.
3. Pilot-plant combustor (75 pounds of coal per hour) for determining the burning characteristics of coal.
4. X-Ray analytical facility including X-ray fluorescence and electron microprobe for analyzing minerals in coal and related material.

9. COMMENT AND PUBLICATION REFERENCES:

Ref. 1. Review of Bureau of Mines Coal Program, 1968
Bureau of Mines Information Circular 8416, June 1969.

10. DATE OF REPORT: 10/21/69

HELIUM RESEARCH CENTER
INSTALLATION

INTERIOR (BU. of MINES)
AGENCY OR DEPT.

689

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: L. Warren Brandt, PhD.   A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Amarillo *(Nearest City)*   B. Potter *(County)*   C. Texas *(State)*

4. P. O. ADDRESS: Helium Research Center, P. O. Box 10085

A. Amarillo *(City)*   B. Texas *(State)*   C. 79106 *(Zip Code)*   D. 806-376-6229 *(Telephone (Area Code & No.)*

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 43
B. ALL OTHER PERSONNEL (Total): 21

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,000,000
B. EXTRAMURAL (Total): $ None

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Both basic and applied research involving helium and helium-other gas systems are conducted under a planned program that includes projects in Thermodynamics (07-04 Chemistry - Chemical Thermodynamics and Thermal Chemistry; and (20-13 Physics - Equations of State - Free Energy - Enthalpy - Low Temperature Phenomenon); Phase Equilibria (07-04 Chemistry - Chemical Equilibria; 20-13 Physics - Thermodynamics Theory - Equations of State - Chemical Thermodynamics - Solutions; and 20-04 Physics - Fluid Mechanics - Theoretical and Experimental Studies of the Dynamics and Statics of Fluids); Molecular Physics (20-06 Physics - Generation and Propagation of the Electromagnetic Wave; and 07-04 Chemistry - Spectroscopic Analysis for Fundamental Understanding); Instrumentation and Process Cycles Studies (07-02 - Chemistry - Synthesis, Properties, Qualitative and Quantitative Analyses; 07-04 Chemistry - Catalysis, Surface Chemistry; and 07-01 Chemistry - Techniques, Processes, Unit Operations, Apparatus, and 20-13 Physics - Heat Transfer.)

In addition there is a continuous project to compile annual bibliographies on the subject of helium (05-02 Behavioral and Social Sciences - Documentation and Information Technology - Bibliographies.)

Numerous computer programs supporting the above activities have been developed and are available for use. Computer services are available to the Research Center through the Bureau of Mines Computer Center in Denver, Colorado.

A. ADDITIONAL COSATI CODES:

None

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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690 8. MAJOR EQUIPMENT:

The Bureau of Mines Helium Research Center has a wide range of conventional and specialized scientific equipment of the types usually found in laboratories where low-temperature research, involving high pressures, is conducted. Some of the major research equipment items, whose acquisition costs were greater than $5,000 are listed below.

Mass Spectrometer, Consolidated Electrodynamics Corp. - 103C
Helium Liquefier - Cryostat, A. D. Little Co.
Helium Analysis Apparatus, Laboratory constructed
Chromatographic Gas Analyzer, Greenbrier, Model 112A
Beta Ray Chromatograph, Laboratory assembled, with Greenbrier Instrument
Integrated Electronic Test Console (with Access) - Government assembled
High Sensitivity - High Load 12KG Analytical Balance, Transmetrics, Inc.
Electron Multiplier and Wien Filter Kit
Servomanometer (Exactl)
Compressibility Apparatus (1000 atmosphere, - Burnett Type)
Molal Volume Apparatus (includes constant-volume pump - Electro-Mechanics Co.)
Coiled Capillary Viscosimeter
Cryogenic Chromatograph Assembly
Low-Temperature, High-Pressure Adsorption Apparatus
Low-Temperature, Phase Equilibrium Apparatus, Laboratory built
High Precision Thermal Conductivity Analyzer

9. COMMENT AND PUBLICATION REFERENCES:

A brochure describing the Bureau's Helium Research Center at Amarillo, Texas, is in preparation. This brochure, containing information about the installation's resources, programs, and facilities will probably be available early in 1970.

There are no special procedural requirements for obtaining access to existing resources of the Center. Initial inquiries should be addressed to either the Assistant Director--Helium, Bureau of Mines, Washington, D.C. 20240, or to the Bureau of Mines, Helium Research Center, P. O. Box 10085, Amarillo, Texas 79106.

10. DATE OF REPORT: October 1969

MARINE MINERALS TECHNOLOGY CENTER
INSTALLATION

INTERIOR (BU. of MINES)
AGENCY OR DEPT.

691

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Arthur P. Nelson
A. TECHNICAL DIRECTOR: Arthur P. Nelson

3. LOCATION: A. Tiburon (Nearest City) B. Marin (County) C. California (State)

4. P. O. ADDRESS: 3150 Paradise Drive, Marine Minerals Technology Center (Bu. of Mines)
A. Tiburon (City) B. California (State) C. 94920 (Zip Code) D. 415-435-3145 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 24
B. ALL OTHER PERSONNEL (Total): 29

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,436,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Develop, test, and evaluate marine mineral deposit sampling and characterization equipment and techniques; analyze and define potential environmental disturbances from marine mining operations as a basis for developing appropriate mining technology. (08-09 Mining Engineering) (08-07 Earth Sciences, Geology and Mineralogy)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Special Equipment

Vertical test tank and research drilling ship (VIRGINIA CITY).

9. COMMENT AND PUBLICATION REFERENCES:

The vertical test tank is 30' high by 6' diameter. Charged with simulated marine placer material, it is used to test the efficiency of drilling equipment. The research drilling ship is a converted Navy tug, 205' in length. It is equipped for field testing of offshore hard mineral drilling equipment. Because of current budget limitations, the vessel is now on loan to the Navy but available for research drilling through special arrangement.

Publication References:
Mineral Information Service, Vol. 21, No. 12, December 1968
California Division of Mines and Geology

10. DATE OF REPORT:
October 21, 1969

Metallurgy Research Center
INSTALLATION

INTERIOR (BU. of MINES)
AGENCY OR DEPT.

693

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. David Schlain (Acting)
A. TECHNICAL DIRECTOR: Dr. David Schlain (Acting)

3. LOCATION: A. College Park (Nearest City) B. Prince Georges (County) C. Maryland (State)

4. P. O. ADDRESS: College Park Metallurgy Research Center, U.S. Bureau of Mines
A. College Park (City) B. Maryland (State) C. 20740 (Zip Code) D. 301-864-3100 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 72
B. ALL OTHER PERSONNEL (Total): 56

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1.9 million
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts a broad spectrum of fundamental and applied research in extractive metallurgy and the utilization of associated mineral and metal products including:

Characterization of Minerals (08-07 Mineralogy; 20-02 Crystallography; 07-02 Inorganic Chemistry)

Structure and properties of mineral surfaces (07-04 Surface Chemistry; 20-12 Solid State Physics)

Process Evaluation and Cost Estimation (07-01 Chemical Engineering

Grinding Studies (07-01 Chemical Engineering)

Application of Electrostatic and Magnetic Fields to Mineral Beneficiation (20-03 Physics-Magnetism

Corrosion (11-06 Materials-Metallurgy-Corrosion studies)

Electrodeposition (11-03 Materials-Metal coatings)

Process for recovering for recycle valuable metals and minerals from secondary and waste sources including incinerator residues (07-01 Chemical Engineering; 07-02 Inorganic Chemistry; 11-07 Extractive Metallurgy)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

The Research Center has a wide range of equipment necessary for diverse studies in metallurgy including:

Proton accelerator and Auger x-ray equipment for surface studies.

Low-energy electron diffraction x-ray and other single-crystal study equipment.

High-temperature and room temperature x-ray diffraction equipment.

Equipment for bench-scale investigations of electro-, hydro-, and pyrometallurgical processes, of special mineral beneficiation techniques, and of metal corrosion.

Pilot plant equipment for the separation of the various constituents of municipal incinerator residues.

Special equipment for separating and refining metals by vacuum distillation, centrifugation, and other means.

9. COMMENT AND PUBLICATION REFERENCES:

"Operation of a Bureau of Mines Metallurgy Research Center," by F.D. Lamb, J. Metals, vol. 14, March 1962, pp. 214-217.

10. DATE OF REPORT: October 24, 1969

Metallurgy Research Center
INSTALLATION

Interior(Bureau of Mines)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: N. B. Melcher
A. TECHNICAL DIRECTOR: N. B. Melcher

3. LOCATION: A. Minneapolis (Nearest City) B. Hennepin (County) C. Minnesota (State)

4. P. O. ADDRESS: Twin Cities Metallurgy Research Center, P. O. Box 1660
A. Minneapolis (City) B. Minnesota (State) C. 55111 (Zip Code) D. 612-725-4610 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 41
B. ALL OTHER PERSONNEL (Total): 89

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,500,000
B. EXTRAMURAL (Total): $ -0-

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The primary function of the Minneapolis Center is to perform research on iron ore concentration and preparation, fundamental and applied research on agglomeration of iron ores and concentrates; a related research effort is conducted on steelmaking. Major effort is devoted to low-grade and sub-marginal ores which cannot be exploited economically by current industrial practices.

Materials 11-06 Metallurgy and Metallography

Chemistry 07-02 Inorganic
07-04 Physical

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

The Research Center has a variety of equipment used for evaluation of the products of its research activity; the following list is representative:

- Electric arc furnace
- Vacuum induction furnace
- Microscope, quantative TV type
- X-ray analyzer, spectrographic
- X-ray diffraction
- Thermal analyzer
- Gas chromatograph
- Kilns, rotary
- Experimental steelmaking furnace
- Experimental blast furnace

9. COMMENT AND PUBLICATION REFERENCES:

Laboratory Brochures or descriptions of publications are available from the research facilities.

10. DATE OF REPORT: October 24, 1969

INSTALLATION: Metallurgy Research Center

AGENCY OR DEPT.: Interior(Bureau of Mines)

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: H. Kenworthy
A. TECHNICAL DIRECTOR: H. Kenworthy

3. LOCATION: A. Rolla (Nearest City) B. Phelps (County) C. Missouri (State)

4. P. O. ADDRESS: Rolla Metallurgy Research Center, Box 280
A. Rolla (City) B. Missouri (State) C. 65401 (Zip Code) D. 314-364-3169 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 29
B. ALL OTHER PERSONNEL (Total): 38

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 900,000
B. EXTRAMURAL (Total): $ -0-

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Rolla Metallurgy Research Center has research capabilities in extractive metallurgy, physical metallurgy, physics, electronics, and chemistry. Present effort emphasizes research in materials recycling and nonferrous extraction areas.

Materials	11-06	Metallurgy
Chemistry	07-02	Inorganic

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

The Research Center has a variety of equipment used for evaluation of research products, of which the following list is representative:

- X-ray analyzers
- Electron microscope
- Spectrophotometric analyzers
- Instron tensile tester
- High temperature vacuum furnaces
- Emission spectrography
- Rolling mill, 8 x 10 inch
- Extrusion press, 500 ton
- Electron microprobe and scanner
- Electron paramagnetic resonance spectrometer

9. COMMENT AND PUBLICATION REFERENCES:

Laboratory Brochures or descriptions of publications are available from the research facilities.

10. DATE OF REPORT: October 24, 1969

Metallurgy Research Center
INSTALLATION

Interior (Bureau of Mines)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Thomas A. Henrie
A. TECHNICAL DIRECTOR: Dr. Thomas A. Henrie

3. LOCATION: A. Reno (Nearest City) B. Washoe (County) C. Nevada (State)

4. P. O. ADDRESS: Reno Metallurgy Research Center, 1605 Evans Avenue
A. Reno (City) B. Nevada (State) C. 89505 (Zip Code) D. 702-784-5391 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 32
B. ALL OTHER PERSONNEL (Total): 55

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,100,000
B. EXTRAMURAL (Total): $ 20,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Reno Center specializes in research on the electrowinning and electrorefining of reactive, refractory, and rare-earth metals using fused-salt baths. The staff is considered to be the world's foremost authority in this area. Other experimentation includes the determination of chemical and electrochemical reaction kinetics, improved extraction and separation techniques for copper, vanadium, silver, gold, and other nonferrous metals. Recovery of precious metals from scrap materials is also under investigation.

Appropriate COSATI Codes: 07-02, 07-03, 07-04, 07-05, 11-06

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

700 8. MAJOR EQUIPMENT:

Cerium Electrowinning Cell Box, Scientific Engineering Lab
Spectrograph, Jarrell Ash Co
Neutron Generator System, Nuclear Chicago Corp
Universal Testing Machine, Instron Engineering Corp

Electron Diffraction Unit, General Electric
X-Ray Diffraction Unit, General Electric
High Temperature Vacuum Furnace, Richard D. Brew Co,Inc
X-Ray Diffraction Unit, General Electric
Spectrograph, Bausch & Lomb
Metallograph, Bausch & Lomb
Stress-Strain Testing Machine, The Long Co
Uranium Electrowinning Cell Box, Oscar Krenz, Inc
Machine, Tinium Olsen Testing Machine Co
Metallograph, Bausch & Lomb

9. COMMENT AND PUBLICATION REFERENCES:

Laboratory Brochures or descriptions of publications are available from the research facilities.

10. DATE OF REPORT: October 24, 1969

METALLURGY RESEARCH CENTER
INSTALLATION

INTERIOR (BU. of MINES)
AGENCY OR DEPT.

701

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Mr. H. Gordon Poole
A. TECHNICAL DIRECTOR: Mr. H. Gordon Poole

3. LOCATION: A. Albany (Nearest City) B. Lynn (County) C. Oregon (State)

4. P. O. ADDRESS: Albany Metallurgy Research Center, P. O. Box 70
A. Albany (City) B. Oregon (State) C. 97321 (Zip Code) D. (503) 926-5811 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 85
B. ALL OTHER PERSONNEL (Total): 138

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ $2,800,000
B. EXTRAMURAL (Total): $ -0-

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Albany Center is the largest metallurgy facility of the Bureau of Mines and encompasses the complete scope of metallurgy research from ore to finished metal shape. The program is oriented chiefly toward research for methods of extracting, purifying, and reducing to metal a wide variety of minerals, concentrates, and waste materials containing both ferrous and nonferrous metals. Mineral dressing research, chemical processing, electric furnace smelting of ores and concentrates, and fabrication of ceramic materials are other major areas of research. A part of the total Bureau program for development of accurate thermodynamic data on inorganic materials is conducted here.

Appropriate COSATI Codes: 07-01, 07-02, 07-04, 11-02, 11-04, 11-06, 20-13.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Electron Probe Microanalyzer
Forging Machine, High Energy Rate to 155,000 Ft Lb., Dynapak
Direct Reading Spectrograph, Model DCQ, Applied Research Co.
Hydraulic Press, 500 T, Hydraulic Press Mfg. Co.
Induction Furnace, #50-300, Consolidated Electrodynamics
Hydraulic Press, 1000 T, Lang Co - Used
Electric ARC Furnace, size St, Pa Lectromelt Furnace Co.
Rolling Mill, 17 x 36 inch, Schmitz - used
X-Ray Diffraction & Fluorscence Analysis Unit, SCI Sup Co.
High Temperature Furnace, Eustis Co.
Forging Manipulator, Salem Brosius, Inc.
Rolling Mill, 8x12 inch, Farrel- Birmingham co., Inc.
Tensile Testing Machine, 30,000 lb cap., Tinius Olsen Test C
Melting Equipment, 50KW, Ajaz Electrothermic Corp.
High Frequency Induction Generator, Radio Frequency Co, Inc.
High Temperature Furnace, Ser #420-B-221, R D Brew & Co.
Spectrograph, #JA70-15L, Jarrell-Ash Co.

9. COMMENT AND PUBLICATION REFERENCES:

A brochure entitled the Albany Metallurgy Research Center has been published which describes the activities and facilities of the Center. (Available from the Center)

10. DATE OF REPORT:

Metallurgy Research Center
INSTALLATION

Interior Bureau of Mines
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: J. B. Rosenbaum
   A. TECHNICAL DIRECTOR: J. B. Rosenbaum

3. LOCATION: A. Salt Lake City (Nearest City) B. Salt Lake County (County) C. Utah (State)

4. P. O. ADDRESS: 1600 East 1st South, Metallurgy Research Center
   A. Salt Lake City (City) B. Utah (State) C. 84112 (Zip Code) D. 801-524-5350 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 58
   B. ALL OTHER PERSONNEL (Total): 75

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 1,800,000
   B. EXTRAMURAL (Total): $ -0-

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research is conducted in hydrometallurgical process development, including chemical extraction, solvent extraction, and ion exchange technology. A secondary program element is research in the field of mineral beneficiation. Work on aqueous electrowinning of metals and alloys and on the development of radiotracer techniques also is carried out. The Center is located on the campus of the University of Utah.

Materials	11-06	Metallurgy and Metallography
Chemistry	07-02	Inorganic
	07-04	Physical
	07-05	Radiation Chemistry

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

The Research Center has a variety of specialized equipment used for the beneficiation of mineralized ores and the evaluation of research products; the following list is representative:

X-ray analyzers, spectrometer & diffraction
Emission Spectrograph
Infrared Spectrometer
Melting Furnaces, induction & electrode
Double beam atomic absorption spectrometry

9. COMMENT AND PUBLICATION REFERENCES:

Laboratory Brochures or descriptions of publications are available from the research facilities.

10. DATE OF REPORT: October 24, 1969

METALLURGY RESEARCH LABORATORY
INSTALLATION

INTERIOR (BU. of MINES)
AGENCY OR DEPT.

705

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. Director: Dr. John P. Hansen
A. Technical Director: Dr. John P. Hansen

3. LOCATION: A. Tuscaloosa (Nearest City) B. Tuscaloosa (County) C. Alabama (State)

4. P. O. ADDRESS: Tuscaloosa Metallurgy Research Laboratory, Post Office Box L
A. University (City) B. Alabama (State) C. 35486 (Zip Code) D. 205-758-0491 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 31
B. ALL OTHER PERSONNEL (Total): 36

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ $0.7 million
B. EXTRAMURAL (Total): $

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts research and engineering studies on the separation and beneficiation of nonmetallic, nonfuel minerals (11-06 Materials - Extractive Metallurgy)

Develops structural building units, glaze frits, thermal insulation, etc., utilizing junk glass of municipal refuse (11-02 Materials - Ceramics, Refractories, and Glasses).

A. ADDITIONAL COSATI CODES:
07-01 Chemical engineering - unit operations
07-02 Inorganic chemistry - quantitative analysis
07-04 Physical chemistry - surface chemistry
08-07 Mineralogy

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

The laboratory has a wide range of laboratory and pilot plant equipment necessary for operating as a specialized mineral beneficiation facility. Unique items include:

1. Microgrinder, 24-inch i.d.; special attrition grinder for grinding nonmetallics to less than 2 microns, esd, in a wet system.

2. Pilot plant for solid-solid gravity separations using organic heavy liquid solutions (sp gr. 2.9) as the dense medium. This unit is only one in country.

3. Four-stage fluidized bed reactor, 6-inch i.d. x 20 feet.

9. COMMENT AND PUBLICATION REFERENCES:

General information: "Bureau of Mines Marks 45th Year on University of Alabama Campus," by Ed Brown, Tuscaloosa News, May 27, 1966, half of page 3.

10. DATE OF REPORT: October 24, 1969

METALLURGY RESEARCH LABORATORY
INSTALLATION

INTERIOR (BU. of MINES)
AGENCY OR DEPT.

707

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Mr. Delwin D. Blue
A. TECHNICAL DIRECTOR: Mr. Delwin D. Blue

3. LOCATION: A. Boulder City (Nearest City) B. Clark (County) C. Nevada (State)

4. P. O. ADDRESS: Boulder City Metallurgy Research Laboratory, 500 Date Street
A. Boulder City (City) B. Nevada (State) C. 89005 (Zip Code) D. 702-293-1033 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 16
B. ALL OTHER PERSONNEL (Total): 34

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 700,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The major research effort is devoted to fused-salt electrowinning and electrorefining of reactive and refractory metals. Other experimentation underway includes development of chemical methods to recover valuable metals and compounds from mineral tailings and processing wastes and scrap.

(Chemistry - Inorganic, 07-02; Materials - Metallurgy and Metallography, 11-06)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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708 8. MAJOR EQUIPMENT:

Press, Watson Stillman
Rectifier Unity Type 3SR
G & L Spectrograph with Accessories
Power Supply, Westinghouse with Controls, D C
Filter, Eimco Drum, 6 x 4 Feet
Lectrodryer Cht W/Blower
N AM Philips X-Ray Spectro W/Accessory Equipment
Spectrophotometer, Perk Elm Inred NO 41
Pump, Bird Centrifuge, Darr Co

9. COMMENT AND PUBLICATION REFERENCES:

Laboratory Brochures or descriptions of publications are available from the research facilities.

This laboratory is an extension of the Reno Metallurgy Research Center and operates under the control of the Research Director at Reno, Nevada. The program is similar to the one at Reno.

10. DATE OF REPORT: October 24, 1969

MINE SYSTEMS ENGINEERING GROUP
INSTALLATION

INTERIOR (BU. of MINES)
AGENCY OR DEPT.

709

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Carl H. Roach
   A. TECHNICAL DIRECTOR: Carl H. Roach

3. LOCATION: A. Denver (Nearest City) B. Jefferson (County) C. Colorado (State)

4. P. O. ADDRESS: Building 20, Federal Center
   A. Denver (City) B. Colorado (State) C. 80225 (Zip Code) D. 303-233-8520 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 24
   B. ALL OTHER PERSONNEL (Total): 19

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 905,000
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Mining related research aimed at improving methods and tools for mineral deposit delineation, predicting ground characteristics pertinent to mine design and operation, and developing better methods for mine systems design and analysis. (08-09 Mining Engineering) (08-07 Earth Sciences - Geology and Mineralogy, 12-01 Mathematical Sciences)

Major program elements:

1. Development, testing and evaluation of field and laboratory sampling equipment.
2. Design and control of deposit sampling campaigns by geophysical methods.
3. Develop techniques for mathematical modeling of mineral deposits.
4. Develop techniques for design and evaluation of mining systems.
5. Sampling and characterization of California Tertiary Channel gold deposits.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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710 8. MAJOR EQUIPMENT:

Mineral deposit sampling and sample preparation equipment.
Geophysical in-hole logging and surface instruments. Instruments for making following rock sample measurements:

Mass physical properties (density, porosity, water content), pore geometry properties, solid state properties, mercury in parts per billion range

Special equipment

Exo-electron emission apparatus
Mobile X-ray machine
X-ray fluorescence - radiography unit
Low and high temperature thermoluminescence apparatus

9. COMMENT AND PUBLICATION REFERENCES:

10. DATE OF REPORT: October 21, 1969

MINING RESEARCH CENTER	INTERIOR (BU. of MINES)
INSTALLATION	AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Paul Russell
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Denver (Nearest City) B. Jefferson (County) C. Colorado (State)

4. P. O. ADDRESS: Building # 20, Federal Center
A. Denver (City) B. Colorado (State) C. 80225 (Zip Code) D. 303-233-8165 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 37
B. ALL OTHER PERSONNEL (Total): 31

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,012,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conduct basic and applied research to determine changes in ground stress conditions in relationship to location, size and shape of underground mine openings; determine optimum configuration of surface mine slopes to avoid excessive concentrations of stress and failure of rock slopes; determine the elastic and inelastic behavior of different mineral deposits and associated strata and relate these data with stress concentrations and deformation of the ground supporting media and subsidence of overlying strata. (08-09 Mining Engineering)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Other than the electronic, mechanical and hydraulic testing equipment usually found in competent research laboratories, no special or unique testing equipment is available or needed for the on-going and planned work.

9. COMMENT AND PUBLICATION REFERENCES:

10. DATE OF REPORT:
October 21, 1969

MINING RESEARCH CENTER
INSTALLATION

INTERIOR (BU. of MINES)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Walter E. Lewis   A. TECHNICAL DIRECTOR: same

3. LOCATION: A. Minneapolis *(Nearest City)*   B. Hennepin *(County)*   C. Minnesota *(State)*

4. P. O. ADDRESS: P. O. Box 1660

   A. Minneapolis *(City)*   B. Minnesota *(State)*   C. 55111 *(Zip Code)*   D. 612-725-4560 *(Telephone (Area Code & No.)*

5. PERSONNEL: (As of June 1969):
   - A. R&D PROFESSIONALS (Total): 43
   - B. ALL OTHER PERSONNEL (Total): 20

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   - A. INTRAMURAL (Total): $ 1,040,000
   - B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts research on rock disintegration to furnish input needed to combine with other elements of the mining process into advanced systems for extracting mineral raw materials. These systems will be synthesized to achieve national goals for conservation and use of mineral, environmental, and human resources.

Studies the quantitative relationship of rock properties and energy application with the amount and kind of rock breakage.

Investigates the mechanisms of transferring energy to rock by various means including explosive, thermal, electric, mechanical, hydraulic, and chemical. (08-09 Mining Engineering) (08-07 Earth Sciences - Geology and Mineralogy).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

8. MAJOR EQUIPMENT:

The laboratory has a wide range of equipment for determining pertinent physical properties and for penetrating and fragmenting rock by various means.

Special Equipment

1. Scanning Electron Microscope
2. Ultrahigh vacuum system
3. 100 watt CO_2 laser system
4. Mobile laboratory for recording blasting vibrations
5. Quadrupole mass spectrometer.

9. COMMENT AND PUBLICATION REFERENCES:

USBM Examines Exotic Ways of Breaking Rock, Eng. and Min. J., V169, No. 4, April 1968, pp. 85-92.

10. DATE OF REPORT:
October 1969

MINING RESEARCH CENTER
INSTALLATION

INTERIOR (BU. of MINES)
AGENCY OR DEPT

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Eugene R. Palowitch
A. TECHNICAL DIRECTOR: same

3. LOCATION: A. Pittsburgh (Nearest City) B. Allegheny (County) C. Pennsylvania (State)

4. P. O. ADDRESS: 4800 Forbes Avenue
A. Pittsburgh (City) B. Pennsylvania (State) C. 15213 (Zip Code) D. 412-621-4360 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 39
B. ALL OTHER PERSONNEL (Total): 22

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 764,500
B. EXTRAMURAL (Total): $ 7,500

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts research on handling mined materials and on controlling the environment in mining operations to furnish the input needed to combine with other elements of the mining process into advanced systems for extracting mineral raw materials. These systems will be synthesized to achieve national goals for conservation and use of mineral, environmental, and human resources.

Determines properties and develops techniques to evaluate the response of broken rock particles and aggregates to movement and storage. Studies specific methods of transporting mined materials such as hydraulic.

Investigates the influence of geology on methane occurrence and emission, studies the kinetics of methane formation, studies the physical characteristics of coalbeds that govern the accumulation and movement of methane, devises and tests methods of controlling methane, and studies methods of improving ventilation.

Investigates techniques for control of drainage from active bituminous coal mines.

Earth Sciences and Oceanography - Mining Engineering, 08-09; Geology and Mineralogy, 08-07, Engineering - Ventilating 13-02; Construction Equipment, 13-03.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

The laboratory has a wide range of equipment for determining pertinent physical properties, measuring various parameters for gas, water, and air, and drilling into coalbeds.

Special Equipment

1. Hydraulic Transportation Facility: A 1-mile-long, 6-inch - ID pipe loop with pressure vessels for introducing solids, automatic controls, and necessary accessory equipment such as scales, screens, pumps, conveyors, and tanks. (not in use)

9. COMMENT AND PUBLICATION REFERENCES:

none

10. DATE OF REPORT:
October 1969

MINING RESEARCH LABORATORY
INSTALLATION

INTERIOR (BU. of MINES)
AGENCY OR DEPT.

717

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: W. R. Wayment
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Spokane (Nearest City) B. Spokane (County) C. Washington (State)

4. P. O. ADDRESS: North 1430 Washington Street
A. Spokane (City) B. Washington (State) C. 99201 (Zip Code) D. 509-838-4561 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 22
B. ALL OTHER PERSONNEL (Total): 16

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 536,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conduct laboratory and field research investigations to determine the location, direction and magnitude of ground stress around mine openings and devise the most optimum combination of artificial ground control equipment and installation techniques for counter-acting these ground control problems. (08-09 Mining Engineering)

Earth Sciences - Soil Mechanics, 08-13

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Special Equipment

Underground straining frame for testing massive artificial ground supports.

9. COMMENT AND PUBLICATION REFERENCES:

10. DATE OF REPORT:
October 21, 1969

Petroleum Research Center
INSTALLATION

Interior (Bureau of Mines)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: John S. Ball
A. TECHNICAL DIRECTOR: John S. Ball

3. LOCATION: A. Bartlesville (Nearest City) B. Washington (County) C. Oklahoma (State)

4. P. O. ADDRESS: Bartlesville Petroleum Research Center, P. O. Box 1398
A. Bartlesville (City) B. Oklahoma (State) C. 74003 (Zip Code) D. 918-336-2400 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 73
B. ALL OTHER PERSONNEL (Total): 121

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,280,000
B. EXTRAMURAL (Total): $ 1,324,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts research both basic and applied which may have applicability to the conservation (production and use) of petroleum. Specific areas include:

Petroleum production

Basic reservoir science and applications--geochemistry, water analyses, crude oil composition, core analysis, surface activity and radiotracers. (08-04, 07-04,07-05)

Petroleum engineering applications--fracturing petroleum bearing formations by chemical and nuclear explosives; stimulation of production by waterflooding, steam injection, or gas recycling; and development of low-permeability or heavy-oil-containing petroleum reservoirs. (08-09)

Application of computer techniques to gas or gas condensate fields to estimate recoveries.

Petroleum utilization

Petroleum chemistry and refining including composition of petroleum, properties of products, and analyses of crude oils. (11-08, 21-04, 07-03, 07-05)

Petroleum thermodynamics. (20-13, 11-04)

Fuels combustion--contributions of petroleum fuels to air pollution and related subjects. (10-01, 21-04, 21-05, 21-07)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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8. MAJOR EQUIPMENT:

The laboratory has a wide range of equipment applicable to petroleum research. Some items of special equipment are:

1. Spectrometers. (Mass, infrared, ultraviolet, emission, nuclear magnetic resonance)
2. Radiochemistry facility (activation analysis, gamma cell, counting facilities, handling equipment for radioisotopes).
3. Dynamometers
4. Calorimeters (low-temperature, combustion, vapor-flow).
5. PVT apparatus

9. COMMENT AND PUBLICATION REFERENCES:

The Bartlesville Petroleum Research Center is conducting research for or in cooperation with various Federal agencies including Atomic Energy Commission, Department of Defense (Air Force, Army, Navy), National Air Pollution Control Authority, as well as other groups in the Bureau of Mines (Helium, Health and Safety, Oil Shale).

Other cooperative projects are with the States of Oklahoma, Kansas, and Utah. Research for industry groups include projects for the American Gas Association, American Petroleum Institute and the Coordinating Research Council.

Descriptions of work include:

1. Bureau of Mines Information Circular 8364, "Petroleum and Oil Shale Research of the Bureau of Mines, Fiscal Year 1966".
2. Laboratory brochures:
    "Petroleum Conservation Through Research" 1967
    "Fifty Years of Petroleum Research" 1968

10. DATE OF REPORT: October 1969

PETROLEUM RESEARCH CENTER
INSTALLATION

INTERIOR (BU. of MINES)
AGENCY OR DEPT.

721

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: G. U. Dinneen   A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Laramie (Nearest City)   B. Albany (County)   C. Wyoming (State)

4. P. O. ADDRESS: Laramie Petroleum Research Center, Box 3395 University Station

A. Laramie (City)   B. Wyoming (State)   C. 82070 (Zip Code)   D. 307-742-2117 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 64
   B. ALL OTHER PERSONNEL (Total): 91

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 2,352,000
   B. EXTRAMURAL (Total): $ 121,977

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts chemical and engineering research on problems bearing on the supply of adequate low-cost energy through the production, modification, and utilization of petroleum and through chemical and engineering studies on oil shale (11-07 Miscellaneous Materials - Petroleum; 21-04 Fuels - Production - Engineering - Chemistry).

Research on characteristics of oil shale and shale oil (07-02; 07-03; 07-04 Synthesis - Properties - Reactions - Analysis: 08-04; 08-07 Composition - Classification - Mineralogy).

Liquid and solid wastes from conversion of oil shale (13-02 Waste Disposal).

Research on the conversion of oil shale by in situ techniques and the conversion of shale oil (10-01 Energy Conversion - Techniques).

Composition research is conducted on crude oils with emphasis on the high-boiling fractions and asphalt (07-03; 07-04 Chemistry - Organic - Physical).

Properties of petroleum reservoir rocks and fluids and effects on petroleum production and recovery (08-07 Earth Sciences and Oceanography - Geology and Mineralogy).

A. ADDITIONAL COSATI CODES: 07-01 Chemistry - Chemical Engineering

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

150-ton experimental oil-shale retort.

Spectroscopy: Mass, infrared, ultraviolet, X-ray, liquid scintillation, and atomic absorption instruments.

Core analysis, fluid flow testing, PVT analysis, and gas-liquid diffusion equipment.

9. COMMENT AND PUBLICATION REFERENCES:

The Laramie Petroleum Research Center serves a broad national interest in the fields of production, processing, and utilization of petroleum and the occurrence, development, and utilization of vast oil-shale resources.

Research on heavy ends of petroleum is supported in part by the American Petroleum Institute. Asphalt research is supported in part by the Bureau of Public Roads.

Parts of the oil-shale conversion research are conducted as field studies.

1. List of Bureau of Mines publications and articles, January 1 to December 31, 1967. U.S. Department of the Interior Bureau of Mines. (Earlier annual and cumulative editions are available from Superintendent of Documents, U.S. Govt. Printing Office, Washington, D.C. 20402.)

2. New publications - Bureau of Mines, pamphlet available from Publications Distributions Branch, Bureau of Mines, U.S. Dept. of the Interior, 4800 Forbes Ave., Pittsburgh, Pa. 15213.

10. DATE OF REPORT: October 1969

Petroleum Research Laboratory
INSTALLATION

Interior (Bureau of Mines)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: W. T. Wertman
A. TECHNICAL DIRECTOR: J. Pasini III

3. LOCATION: A. Morgantown (Nearest City) B. Monongalia (County) C. West Virginia (State)

4. P. O. ADDRESS: P.O. Box 880, Petroleum Research Laboratory (Bureau of Mines)

A. Morgantown (City) B. W. Va. (State) C. 26505 (Zip Code) D. AC 304 599-3441 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 18
B. ALL OTHER PERSONNEL (Total): 16

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 430,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Study of petroleum-reservoir rock and fluid properties, including pore size, pore-size distribution, surface characteristics, and mineral composition, to determine their effects on fluid saturation, saturation distribution, and fluid-flow behavior; and to develop new and/or improved techniques for characterizing and measuring rock and fluid properties. (08-07 Earth Sciences and Oceanography, Geology and Mineralogy)

Study of the thermal crude oil recovery techniques applicable to Appalachian oil reservoirs and encouragement of their use by eastern U.S. oil producers. (07-01 Chemistry, Chemical Engineering)

Studies to determine the type of secondary oil recovery mechanism most applicable to a particular petroleum-producing horizon, thus promoting initiation of the technique through publication of the information related to the particular field. (08-07 Earth Sciences and Oceanography, Geology and Mineralogy)

Correlation of surface features (lineaments, joints, stress fields) to the compass direction of hydraulically induced fractures in oil and gas wells to promote more efficient production of petroleum from tight petroleum-producing reservoirs. The results of this work will be used in gas-storage projects, oil recovery by primary and secondary means, in situ combustion for the production of crude oil and methane drainage from coal seams. The techniques used for determining surface features and their orientation can then be applied for petroleum exploration. (08-07 Earth Sciences and Oceanography, Geology and Mineralogy) (07-01 Chemistry, Chemical Engineering)

A. ADDITIONAL COSATI CODES: 07-03 Chem.-Organic; 07-04 Chem.-Physical Chem.; 08-07 Earth Sci.and Oceanography-Geol.& Mineralogy; 13-02 Civil Eng.-Well Drilling-Water Treatment; 20-03 Physics-Magnetics; 20-11 Physics-Solid Mechanics; 21-02 Propulsion and Fuels - Combustion and Ignition.

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
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8. MAJOR EQUIPMENT:

The laboratory has a wide variety of special equipment for measuring the properties of porous media as related to the flow of fluids in the porous media.

Special Equipment:

1. Helium Porosimeter: For measuring porosity of low-porosity porous media (automatic system).
2. Ultrasonic Generator: Variable frequency - 500 UF; stepped horn transformer; 18, 40, 150, and 400 kc, 200 watts output, 40 watts per cm^2.
3. Ultrasonic Cell Disintegrators: 20 kc - 75 watts output, 55 watts per cm^2; and 150 watts output, 100 watts per cm^2.

9. COMMENT AND PUBLICATION REFERENCES:

The Morgantown Petroleum Research Laboratory is engaged in basic and applied research as related to the production and storage of petroleum hydrocarbons in both a gaseous and liquid state.

Ref: 1. Laboratory Brochure: Petroleum Recovery Research at the Morgantown Petroleum Research Laboratory. (34 pages, 18 figures)

2. List of Bureau of Mines Publications and Articles, Bureau of Mines Special Publication, 1910-1967.

10. DATE OF REPORT: October 1969

PETROLEUM RESEARCH OFFICE
INSTALLATION

INTERIOR (BUREAU OF MINES)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Oren C. Baptist
   A. TECHNICAL DIRECTOR: Oren C. Baptist

3. LOCATION: A. San Francisco (Nearest City) B. San Francisco (County) C. California (State)

4. P. O. ADDRESS: 630 Sansome Street, Room 1429
   A. San Francisco (City) B. Calif. (State) C. 94111 (Zip Code) D. (415) 556-4350 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 7
   B. ALL OTHER PERSONNEL (Total): 2

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 165,000
   B. EXTRAMURAL (Total): $ 000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research on methods for increasing the rate of production and/or ultimate recovery from petroleum reservoirs with especial attention to problems unique to California fields.

COSATI Codes: (08-07, Earth Sciences, Geology and Mineralogy; 12-01, Mathematical Sciences, Mathematics and Statistics; 21-04, Propulsion and Fuels, Fuels.)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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726 8. MAJOR EQUIPMENT:

Flame photometer

Gas-Liquid Chromatograph

Vapor pressure osmometer

Standard core-testing and oil-well mud testing apparatus

9. COMMENT AND PUBLICATION REFERENCES:

This is a small, self-contained petroleum-reservoir research facility with expertise in the field of mathematical modeling of petroleum reservoir performance.

10. DATE OF REPORT: October 20, 1969

RESEARCH VESSEL VIRGINIA CITY
INSTALLATION

INTERIOR (BUREAU OF MINES)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Arthur P. Nelson
A. TECHNICAL DIRECTOR:

3. LOCATION: A. Tiburon *(Nearest City)* B. Marin *(County)* C. California *(State)*

4. P. O. ADDRESS: 3150 Paradise Drive
A. Tiburon *(City)* B. California *(State)* C. 94920 *(Zip Code)* D. 415-435-3145 *(Telephone (Area Code & No.)*

5. PERSONNEL: **(As of June 1969):**
A. R&D PROFESSIONALS (Total): NA
B. ALL OTHER PERSONNEL (Total):

6. FUNDING **(Approximate FY 1969 Dollar Obligation):**
A. INTRAMURAL (Total): $ NA
B. EXTRAMURAL (Total): $

7. MAJOR FUNCTIONS AND ACTIVITIES **(Include COSATI Codes):**

Ship is used to delineate off-shore mineral deposits and as test equipment for evaluating the performance of floating mining equipment. COSATI Codes 08-09, 08-07.

Vessel length 205'
draft 15'
tonnage 2000 (approx.)

Crew - 8 Professional Personnel - 10
Support Personnel - 15

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

a. Percussion drill for ocean bottom core sampling

b. Test equipment for determining metal content of ocean bottom core samples (e.g. gold)

9. COMMENT AND PUBLICATION REFERENCES:

Technical Progress Reports covering drilling operations of the Alaskan coast at Norton Sound (Nome) are available on request from the Bureau of Mines. The research drilling ship is a converted Navy tug, 205' in length. It is equipped for field testing of offshore hard mineral drilling equipment. Because of current budget limitations, the vessel is now on loan to the Navy but available for research drilling through special arrangement.

10. DATE OF REPORT:
October 21, 1969

SAFETY RESEARCH CENTER
INSTALLATION

INTERIOR (BU. of MINES)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Robert W. Van Dolah
A. TECHNICAL DIRECTOR: R. W. Van Dolah

3. LOCATION: A. Pittsburgh (Nearest City) B. Allegheny (County) C. Pennsylvania (State)

4. P. O. ADDRESS: 4800 Forbes Avenue
A. Pittsburgh (City) B. Pennsylvania (State) C. 15213 (Zip Code) D. 412-621-4260 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 92
B. ALL OTHER PERSONNEL (Total): 99

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 2,961,000
B. EXTRAMURAL (Total): $ none

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts research to develop improved technology to conserve human resources in the mineral-extraction industry. This requires conduct of research to overcome health and safety problems that accompany increased mechanization, higher productivity and other technological changes in mining methods; development of methods or techniques leading to mining practices that will provide improved safety and efficiency; and development and implementation of Federal Schedules for electrically operated mining machines and devices, diesel equipment, and respiratory protective equipment.

Conducts research to provide technologic information and guidance to Federal, State, and local governmental agencies having problems involving: The safe handling and use of commercial explosives and blasting agents; safety characteristics of explosives certified by the Bureau for use in underground bituminous coal mines; hazards of gas and vapor explosions from flammable liquids and/or gases; the hazards from potentially explosive chemicals of commerce; and the means of controlling unwanted fires, and explosions in minerals, mineral fuels, and their products.

Earth Science - Mining Engineering, 08-09; Engineering Safety 13-12)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

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8. MAJOR EQUIPMENT:

The laboratory has a wide range of special equipment and specialized facilities for research on respirators, respirable and explosive dust, explosive and noxious gases, explosives, blasting agents and hazardous chemicals, and combustion; for testing and evaluation of ground control materials, equipment, and techniques; and for testing and safety certification of electrical and mechanical mining equipment, diesel-powered mining equipment, and respiratory protective equipment.

Special Equipment

1. Experimental coal mine for research and testing, such as on gas/dust explosions.
2. Explosion gallery -- 6' x 80' chamber for gas/dust research
3. Explosive testing pond -- 25' deep x 200' diameter, for underwater testing and evaluation of explosives.
4. Bomb proof test cells for testing of explosives and fast burning fuels.

9. COMMENT AND PUBLICATION REFERENCES:

The activities of the former Explosives Research Center and the Health and Safety Research and Testing Center of the Bureau of Mines have been combined under the Safety Research Center.

10. DATE OF REPORT:

October 21, 1969

ENGINEERING AND RESEARCH CENTER
INSTALLATION

INTERIOR (USBR)
AGENCY OR DEPT.

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: B. P. Bellport
A. TECHNICAL DIRECTOR: G. E. Burnett

3. LOCATION: A. Denver (Nearest City) B. Jefferson (County) C. Colorado (State)

4. P. O. ADDRESS: U. S. Bureau of Reclamation,
A. Denver (City) B. Colorado (State) C. 80225 (Zip Code) D. 303-233-3611 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 115
B. ALL OTHER PERSONNEL (Total): 80

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 3,200,000
B. EXTRAMURAL (Total): $ 560,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts research and development programs on engineering materials and design concepts, electric power, and ecology, and water quality problems to improve effectiveness and economy in planning, designing, and building water resources development projects.

Chemistry and physics techniques are used in materials, corrosion, radioisotopes, and evaporation reduction studies (07-04 Chemistry-Phys. Chem.; 20-12 Physics-Solid State Physics).

Concrete, rock, and soil studies are made in-situ and in the laboratory (11-02 Materials-Ceramics, Refractories and Glasses-Concrete; 08-07 Earth Sciences and Oceanography-Geology and Mineralogy-Rock and Soils).

Electric power research includes hydropower, interties, stability, and equipment (10-02 Energy Conv.-Generators; 09-03 Electronics and Electrical Systems-Electrical Syst.).

Hydraulics research covers spillways, outlet works, flow systems, gates and valves, aquifers, flow measuring and reaeration (20-04 Physics-Fluid Mechanics).

Structural research covers earthquakes, dams, mechanical facilities, and performance of structures (13-13 Mech. Ind., Civil, and Marine Eng.-Struct. Eng.-Bldgs., Bridges,Dams).

Water quality and pollution control studies concern effects of water projects on limnology, chemistry, and ecology of reservoirs and streams (13-02 Mech. Ind., Civil, and Marine Eng.-Water Pollution Control).

Weed studies concern chemical methods of controlling aquatic and ditchbank weeds and phreatophytes, and herbicide residues (06-03 Biol. and Medical Sci.-Biology-Botany; 13-02 Mech., Ind., Civil, and Marine Eng.-Civil Eng.-Water Poll. Control).

A. ADDITIONAL COSATI CODES: 13-02 Mech., Ind., Civil,& Marine Eng.-Civil Eng.-Desalination
11-02 Materials-Coatings, Colorants, and Finishes
11-03 Materials-Composite Materials

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

The laboratories are equipped with a wide variety of equipment and apparatus for engineering materials and hydraulic research; chemical, physical, and petrographic analyses; and weed control and water demineralization tests. Examples include gas-liquid chromatography, atomic absorption spectrophotometry, and X-ray diffraction.

Special Equipment: (not available at most similar installations)

1. Vibration test facility for earthquake and related tests; 50,000-pound vector force system, with cyclic or programed inputs.

2. 5,000,000-pound capacity universal testing machine for specimens up to 32 feet long, and triaxial machine for 6-inch diameter samples with axial and lateral loads up to 125,000 psi.

3. Two mobile laboratories for electric power studies in the field under full line voltage and power transmission conditions.

4. Triaxial test machines for gravelly soils for specimens up to 9 by 22-1/2 inches, up to 40,000-lb axial and 1,000-lb lateral loads, pore fluid pressure measurements, and provision for dynamic testing.

5. High and moderate-head pumps, calibrated metering facilities, and flumes for hydraulic studies.

9. COMMENT AND PUBLICATION REFERENCES:

The engineering laboratories are fully and modernly-equipped, have trained staffs, and consist of the Hydraulics, Concrete and Structural, Chemical Engineering, Soils Engineering, and Electric Power Branches. Full laboratory shop facilities are also provided, together with secretarial, purchasing, and other support functions.

Ref: 1. "Report of Progress on Engineering Research, Bureau of Reclamation, 1968-1969," Bureau of Reclamation Water Resources Research Publication No. 21, 1969.

2. "Interior's Bureau of Reclamation," A Bureau of Reclamation brochure, 1969.

3. "The Engineering Laboratories," a Bureau of Reclamation brochure, 1967.

10. DATE OF REPORT: October, 1969

BIRD AND MAMMAL LABORATORY
INSTALLATION

INTERIOR (BUR. SPORT FISH. & WILDLIFE)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Richard H. Manville
   A. TECHNICAL DIRECTOR: same

3. LOCATION: A. Washington (Nearest City) B. (County) C. D. C. (State)

4. P. O. ADDRESS: Bird and Mammal Laboratory, Bur. Sport Fish. & Wildlife, Interior
U. S. National Museum
A. Washington, D. C. (City) B. (State) C. 20036 (Zip Code) D. 202-343-5161 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 10
   B. ALL OTHER PERSONNEL (Total): 10

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 250,000
   B. EXTRAMURAL (Total): $ -0-

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conduct taxonomic, distribution, and life history studies of North American fauna; maintain a museum collection for scientific reference, and render a public service in the identification of birds and mammals. 06-03 Biology.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

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8. MAJOR EQUIPMENT:

No major items of equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Publication reference:

Annual report "Wildlife Research Problems Programs Progress." United States Department of the Interior, Bureau of Sport Fisheries and Wildlife.

10. DATE OF REPORT: 12-15-69

EASTERN FISH DISEASE LABORATORY	INTERIOR (BUR. SPORT FISH. & WILDLIFE)
INSTALLATION	AGENCY OR DEPT.

735

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Dr. S. F. Snieszko A. TECHNICAL DIRECTOR: Dr. S. F. Snieszko

3. LOCATION: A. Martinsburg (Nearest City) B. Jefferson (County) C. W. Virginia (State)

4. P. O. ADDRESS: Eastern Fish Disease Laboratory, Bur. of Sport Fish. & Wildlife

A. Kearneysville (City) B. W. Virginia (State) C. 25430 (Zip Code) D. 304-725-2553 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
   - A. R&D PROFESSIONALS (Total): 6
   - B. ALL OTHER PERSONNEL (Total): 7

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   - A. INTRAMURAL (Total): $ 163,000
   - B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research is conducted to identify parasites and causative agents of fish diseases and to determine methods of prevention and control. (06-03 Biological and Medical Sciences - Biology; 06-13 Microbiology).

Current projects include:

1. Bacterial diseases and immunology of fish. (06-03 Biology - pathology and physiology; 06-13 Microbiology - bacteria).
2. Viral diseases of freshwater fishes. (06-03 Biology - pathology and physiology; 06-13 Microbiology - viruses).
3. Fish tissue culture (06-03 Biology - tissue culture).
4. Parasites of fresh water fish. (06-03 Biology - parasitology).
5. Pathology of fishes (06-03 Biology - physiology and pathology).

A. ADDITIONAL COSATI CODES:

08-01

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

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8. MAJOR EQUIPMENT:

Virus and tissue culture facilities.

9. COMMENT AND PUBLICATION REFERENCES:

Resource Publication 77 "Progress in Sport Fishery Research - 1968" Bureau of Sport Fisheries and Wildlife, Washington, D. C. pp. 135-145. 1969.

Resource Publication 73 "Laboratories for Fish Disease Research" Bureau of Sport Fisheries and Wildlife, Washington, D. C. 1968.

10. DATE OF REPORT: 12/15/69

Eastern Fish Nutrition Laboratory — INSTALLATION

Interior (Bur. Sport Fish & Wildlife) — AGENCY OR DEPT.

737

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Dr. Arthur M. Phillips, Jr. A. TECHNICAL DIRECTOR: Dr. Arthur M. Phillips, Jr.

3. LOCATION: A. Syracuse (Nearest City) B. Cortland (County) C. New York (State)

4. P. O. ADDRESS: Eastern Fish Nutrition Laboratory, BSFW

A. Cortland (City) B. New York (State) C. 13045 (Zip Code) D. 607 756-2455 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 4
   B. ALL OTHER PERSONNEL (Total): 1

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 83,500
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

A cooperative research program with New York State Conservation Department and Cornell University is directed toward the development of complete trout diets which will produce the best quality fish in the shortest time and at the least expense. (06-01 Biological and Medical Sciences - Biochemistry; 06-03 Biology)

Current projects include:

1. Chemical composition of hatchery and wild trout. (06-01 Biochemistry - comparison of biochemical composition; 06-03 Biology - physiology).
2. Chemical composition of trout blood. (06-01 Biochemistry - identification of biochemical substances; 06-03 Biology - physiology).
3. Vitamin requirements of trout. (06-01 Biochemistry - chemical processes which take place in systems of trout; 06-03 Biology - physiology and pathology (dietary diseases)).
4. Effect of physical factors on growth of hatchery trout. (06-03 Biology - physiology).
5. Mineral metabolism of trout. (06-03 Biology - physiology).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

738 8. MAJOR EQUIPMENT:

Canalco disc electrophoresis system

9. COMMENT AND PUBLICATION REFERENCES:

Resource Publication 77 "Progress in Sport Fishery Research - 1968"
Bureau of Sport Fisheries and Wildlife, Washington, D. C. pp. 158-170. 1969.

10. DATE OF REPORT: 12/15/69

FISH CONTROL LABORATORY
INSTALLATION

INTERIOR (BUR. SPORT FISH. & WILDLIFE)
AGENCY OR DEPT.

739

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Dr. Robert E. Lennon
A. TECHNICAL DIRECTOR: Dr. Robert E. Lennon

3. LOCATION: A. La Crosse (Nearest City) B. La Crosse (County) C. Wisconsin (State)

4. P. O. ADDRESS: P. O. Box 862 Bureau of Sport Fisheries and Wildlife
A. La Crosse (City) B. Wisconsin (State) C. 54601 (Zip Code) D. 608 782-4235 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1968):
A. R&D PROFESSIONALS (Total): 8
B. ALL OTHER PERSONNEL (Total): 7

6. FUNDING (Approximate FY 1968 Dollar Obligation):
A. INTRAMURAL (Total): $ 202,600
B. EXTRAMURAL (Total): $ 7,400

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research is conducted to develop principles and methods of controlling the abundance and activities of fish populations. Primary effort is to search for general and selective chemical toxicants that will permit control of unwanted fishes. Also active is a small-scale program to provide the U.S. Food and Drug Administration with data needed to permit clearance of therapeutic drugs and chemicals used in fish culture. (06-01 Biological and Medical Sciences-Biochemistry; 06-03 Biology; 06-20 Toxicology).

Current investigations include:

1. Preliminary delineative and intensive screening of fish control chemicals. (06-20 Toxicology).
2. Evaluation of fish control agents in the field. (06-20 Toxicology).
3. Effects of fish control agents on blood and hematopoietic tissue. (06-03 Biology-physiology).
4. Effects on the central nervous system of fish. (06-03 Biology - physiology).
5. Effects of fish control agents on behavior of fish. (06-03 Biology - behavior).
6. Fate of control agents in fish. (06-20 Toxicology - detection).
7. Efficacy of anesthetics and collecting aids on fish. (06-20 Toxicology).
8. Effects on the renal system of fish. (06-03 Biology - physiology).
9. Develop methods to test fish control agents. (06-01 Biochemistry - methods).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

740

8. MAJOR EQUIPMENT:

Gas chromatograph and accessories.
Spectrophotometers, scan and flame.
Radiation scaler, osometer, Warburg apparatus.
Atomic absorption spectrophotometer
Infrared spectrophotometer.

9. COMMENT AND PUBLICATION REFERENCES:

Resource Publication 77 "Progress in Sport Fishery Research - 1968" Bureau of Sport Fisheries and Wildlife, Washington, D. C. pp. 114-132. 1969.

NOTE: The Southeastern Fish Control Laboratory (p. 765) is a sub-laboratory of the Fish Control Laboratory, La Crosse, Wisconsin.

10. DATE OF REPORT: 12/15/69

Fish Farming Experimental Station
INSTALLATION

Interior (Bur. Sport Fish & Wildlife)
AGENCY OR DEPT.

741

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Mr. Kermit E. Sneed
A. TECHNICAL DIRECTOR: Mr. Kermit E. Sneed

3. LOCATION A. Stuttgart (Nearest City) B. Arkansas (County) C. Arkansas (State)

4. P. O. ADDRESS: P. O. Box 860 Bureau of Sport Fisheries and Wildlife
A. Stuttgart (City) B. Arkansas (State) C. 72160 (Zip Code) D. 501 922-6775 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 7
B. ALL OTHER PERSONNEL (Total): 7

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 190,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research is concerned with problems encountered in the production of commercial food fish in a crop rotation of rice and fish. Extension and diagnostic services are provided to commercial fish farmers. (06-03 Biological and Medical Sciences - Biology; 06-06 Environmental Biology; 06-13 Microbiology).

Current investigations include:

1. Incidence and extent of diseases and parasites in fish farms. (06-03 Biology - parasites; 06-13 Microbiology - bacteria).
2. Control of Lernaea and Ichthyophthirius infections. (06-03 Biology - parasitology)
3. Evaluation of low cost feeds. (06-03 Biology - physiology).
4. Development of faster growing fish strains. (06-03 Biology - genetics).
5. Control of bacterial diseases of warmwater fishes. (06-03 Biology - disease control).
6. Control of Aeromonas and Pseudomonas diseases. (06-03 Biology - disease control).
7. Effects of water quality on fish production. (06-06 Environmental biology - external influences on fish production).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

742

8. MAJOR EQUIPMENT:

No special equpment

9. COMMENT AND PUBLICATION REFERENCES:

Resource Publication 77 "Progress in Sport Fishery Research - 1968"
Bureau of Sport Fisheries and Wildlife, Washington, D. C. pp. 218-238. 1969.

Circular 126 "This is the Fish Farming Experimental Station"
Bureau of Sport Fisheries and Wildlife, Washington, D. C.

Resource Publication 73 "Laboratories for Fish Disease Research"
Bureau of Sport Fisheries and Wildlife, Washington, D. C. 1968.

10. DATE OF REPORT: 12/15/69

FISH GENETICS LABORATORY
INSTALLATION

INTERIOR (BUR. SPORT FISH. & WILDLIFE)
AGENCY OR DEPT.

743

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Mr. Bruno von Limbach
A. TECHNICAL DIRECTOR: Mr. Bruno von Limbach

3. LOCATION: A. Rapid City (So. Dakota) (Nearest City) B. Crook (County) C. Wyoming (State)

4. P. O. ADDRESS: Fish Genetics Laboratory, Bur. of Sport Fish. & Wildlife
A. Beulah (City) B. Wyoming (State) C. 82712 (Zip Code) D. 307-643-2255 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 5
B. ALL OTHER PERSONNEL (Total): 7

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 213,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts long-term studies of fish genetics and the selective breeding of trout. (06-03 Biological and Medical Sciences - Biology).

Current studies include:

1. Breeding rainbow trout for albinism. (06-03 Biology - genetics).
2. Breeding rainbow trout for genetic diversity. (06-03 Biology - genetics).
3. Breeding rainbow trout for variant inbred lines. (06-03 Biology - genetics).
4. Breeding rainbow trout for age of sexual maturation. (06-03 Biology-genetics)
5. Breeding rainbow trout for growth. (06-03 Biology - genetics).
6. Breeding rainbow trout for crowding tolerance. (06-03 Biology - genetics).
7. Breeding rainbow trout for formalin tolerance. (06-03 Biology - genetics).
8. Breeding rainbow trout for DDT tolerance. (06-03 Biology - genetics).
9. Breeding rainbow trout for season of sexual maturity. (06-03 Biology - genetics).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

No special equipment

9. COMMENT AND PUBLICATION REFERENCES:

Resource Publication 77 "Progress in Sport Fishery Research - 1968"
Bureau of Sport Fisheries and Wildlife, Washington, D. C. pp. 193-200. 1969.

10. DATE OF REPORT: 12/15/69

FISH PESTICIDE RESEARCH LABORATORY — **INSTALLATION**

INTERIOR (BUR. SPORT FISH. & WILDLIFE) — **AGENCY OR DEPT.**

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Richard A. Schoettger
A. TECHNICAL DIRECTOR: Dr. Richard A. Schoettger

3. LOCATION: A. Columbia (Nearest City) B. Boone (County) C. Missouri (State)

4. P. O. ADDRESS: Fish Pesticide Research Laboratory, Route 1, Bureau of Sport Fisheries and Wildlife

A. Columbia (City) B. Missouri (State) C. 65201 (Zip Code) D. 314-442-3101 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 25
B. ALL OTHER PERSONNEL (Total): 15

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 609,000
B. EXTRAMURAL (Total): $ 9,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Fish pesticide research involves studies to determine the amounts, kinds, and formulations of pesticides that are lethal or injurious to fish and other aquatic life. A small field station is located at the Tiburon Marine Laboratory, Tiburon, California. (06-06 Biological and Medical Sciences - Environmental Biology; 06-13 Microbiology; 06-20 Toxicology).

Current investigations include:

1. Acute toxicity of pesticides to freshwater fish and invertebrates. (06-06 Environmental Biology - Pesticides).
2. Acute toxicity of pesticides to freshwater invertebrates. (06-06 Environmental Biology - Pesticides).
3. Chronic toxicity of pesticides to fish. (06-06 Environmental Biology - Pesticides; 06-20 Toxicology - physiological effects).
4. Pesticide effects on fish endocrine functions. (06-20 Toxicology - physiological effects).
5. Metabolism of pesticides in fish. (06-20 Toxicology - physiological effects).
6. Interactions - pesticides on fish enzyme systems. (06-20 Toxicology - physiological effects).
7. Effect pesticides on aquatic animals in marine environment. (06-06 Environmental Biology - Pesticides).
8. Interaction between microorganisms and pesticides. (06-13 Microbiology; 06-06 Environmental Biology - Pesticides).
9. Pesticide induced mineral imbalance in fish. (06-20 Toxicology - physiological effects).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Chromatographic system.
Liquid scintillation counter.
Spectrophotometer: DU -2
" : IR-9
" : SF-1
Sterilizer.
Chromatograph.
Mass spectrometer.

9. COMMENT AND PUBLICATION REFERENCES:

Resource Publication 77 "Progress in Sport Fishery Research - 1968" Bureau of Sport Fisheries and Wildlife, Washington, D. C. pp. 92-113. 1969.

10. DATE OF REPORT: 12/15/69

MIGRATORY BIRD POPULATIONS STATION
INSTALLATION

INTERIOR (BU.SPORT FISH.& WILDLIFE)
AGENCY OR DEPT

747

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Walter F. Crissey
A. TECHNICAL DIRECTOR: same

3. LOCATION: A. Laurel (Nearest City) B. Anne Arundel (County) C. Maryland (State)

4. P. O. ADDRESS: Migratory Bird Populations Station, Bu. of Sport Fisheries & Wildlife
A. Laurel (City) B. Maryland (State) C. 20810 (Zip Code) D. 301-776-4880 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 40
B. ALL OTHER PERSONNEL (Total): 50

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,400,000
B. EXTRAMURAL (Total): $ 20,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Analyze data from bands, production surveys, and harvest questionnaires on migratory birds to provide the information required to establish sound hunting and management regulations. 06-03 Biology.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

748

8. MAJOR EQUIPMENT:

None--use of computer systems and associated equipment obtained on rental basis.

9. COMMENT AND PUBLICATION REFERENCES:

Publication Reference:
Annual Report "Wildlife Research Problems Programs Progress." United States Department of the Interior, Bureau of Sport Fisheries & Wildlife.

10. DATE OF REPORT: 12-15-69

NARRAGANSETT MARINE GAME FISH LABORATORY
INSTALLATION

INTERIOR (BUR.SPORT FISH. & WILDLIFE)
AGENCY OR DEPT.

749

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Dr. Lionel A. Walford
A. TECHNICAL DIRECTOR: Mr. Phillip Edmunds (Acting)

3. LOCATION: A. Providence (Nearest City) B. Washington (County) C. Rhode Island (State)

4. P. O. ADDRESS: Narragansett Marine Game Fish Laboratory, RFD 2, Box 522-A /Bur.Sport Fisheries & Wildlife
A. Narragansett (City) B. Rhode Island (State) C. 02882 (Zip Code) D. 401 783-3359 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 6
B. ALL OTHER PERSONNEL (Total): 3

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 133,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conduct research on aquiculture, racial determination of important marine game fish species, and life history, distribution, abundance, and migration of big marine game fishes. (06-03 Biological and Medical Sciences - Biology; 08-01 Earth Sciences and Oceanography - Biological Oceanography).

Current investigations include:

1. Natural history of sharks. (08-01 Biological oceanography).
2. Differentiation of races of game fishes. (06-03 Biology - physiology).
3. Experimental aquiculture. (08-01 Biological oceanography).
4. Natural history of Western Atlantic oceanic game fish. (08-01 Biological oceanography).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

750 8. MAJOR EQUIPMENT:

Automatic scintillation counting system.

9. COMMENT AND PUBLICATION REFERENCES:

Resource Publication 77 "Progress in Sport Fishery Research - 1968"
Bureau of Sport Fisheries and Wildlife, Washington, D. C. pp. 3-29. 1969.

Resource Publication 53 "Atlantic Marine Game Fish Research"
Bureau of Sport Fisheries and Wildlife, Washington, D. C. 1968.

10. DATE OF REPORT: 12/15/69

North Central Reservoir Investigations
INSTALLATION

Interior (Bur. Sport Fish. & Wildlife)
AGENCY OR DEPT.

751

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Dr. Norman G. Benson
   A. TECHNICAL DIRECTOR: Dr. Norman G. Benson

3. LOCATION: A. Yankton (Nearest City) B. Yankton (County) C. South Dakota (State)

4. P. O. ADDRESS: P. O. Box 139 Bureau of Sport Fisheries and Wildlife
   A. Yankton (City) B. South Dakota (State) C. 57078 (Zip Code) D. 402 667-9636 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 11
   B. ALL OTHER PERSONNEL (Total): 5

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 248,500
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Studies are carried out simultaneously to define the interrelationships in upper Missouri River reservoirs of different ages. (06-03 Biological and Medical Sciences - Biology; 08-08 Earth Sciences and Oceanography - Hydrology and Limnology).

Current research includes:

1. Life history of reservoir fishes. (06-03 Biological - zoology).
2. Fish population dynamics . (06-03 Biological - zoology).
3. Limnological investigations. (08-08 Hydrology and limnology - physical, chemical, and biological conditions in fresh water bodies).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

752 8. MAJOR EQUIPMENT:

No special equipment

9. COMMENT AND PUBLICATION REFERENCES:

Resource Publication 77 "Progress in Sport Fishery Research - 1968"
Bureau of Sport Fisheries and Wildlife, Washington, D. C. pp. 59-74. 1969.

10. DATE OF REPORT: 12/15/69

NORTHERN PRAIRIE WILDLIFE RESEARCH CENTER
INSTALLATION

INTERIOR (BUR. SPORT FISH. & WILDLIFE)
AGENCY OR DEPT.

753

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Harvey K. Nelson
A. TECHNICAL DIRECTOR: same

3. LOCATION: A. Jamestown (Nearest City) B. Stutsman (County) C. North Dakota (State)

4. P. O. ADDRESS: Northern Prairie Wildlife Research Center, Box 1672, Bureau of Sport Fisheries & Wildlife
A. Jamestown (City) B. North Dakota (State) C. 58401 (Zip Code) D. 701-252-5363 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 20
B. ALL OTHER PERSONNEL (Total): 13

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 690,000
B. EXTRAMURAL (Total): $ 10,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conduct ecological studies of waterfowl species inhabiting prairie wetlands with the objectives of improving habitat management, defining guidelines for wetland acquisition and preservation, and determining habitat requirements of the various species. 06-03 Biology, 08-08 Hydrology and Limnology.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

754

8. MAJOR EQUIPMENT:

Atomic Absorption Spectrophotometer
Physiograph
Phase Fluorescence Ortholux Microscope

9. COMMENT AND PUBLICATION REFERENCES:

Publication reference:

Annual report "Wildlife Research Problems Programs Progress." United States Department of the Interior, Bureau of Sport Fisheries and Wildlife.

10. DATE OF REPORT: 12-15-69

PATUXENT WILDLIFE RESEARCH CENTER
INSTALLATION

INTERIOR (BUR.SPORT FISH. & WILDLIFE)
AGENCY OR DEPT

755

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Eugene H. Dustman
A. TECHNICAL DIRECTOR: same

3. LOCATION: A. Laurel (Nearest City) B. Anne Arundel (County) C. Maryland (State)

4. P. O. ADDRESS: Patuxent Wildlife Research Center, Bur. of Sport Fisheries & Wildlife
A. Laurel (City) B. Maryland (State) C. 20810 (Zip Code) D. 301-776-4880 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 84
B. ALL OTHER PERSONNEL (Total): 36

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 2,300,000
B. EXTRAMURAL (Total): $ 50,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research on the ecological and physiological effects of pesticides and other environmental pollutants on wildlife species. 06-20 Toxicology, 06-15 Pharmacology.

Conduct research on methods of controlling nuisance and destructive populations of bird and animals. 06-20 Toxicology, 06-03 Biology.

Study wildlife diseases and parasites as related to causative organisms, transmission to other forms, and developing methods of control. 06-03 Biology.

Conduct both laboratory and pen studies to develop techniques for the propagation of endangered species, and to establish pathogens and behavioral traits that may affect their survival. 06-03 Biology.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

756 8. MAJOR EQUIPMENT:

Spectrophotometer
Spectrometer, liquid scintillation
Gas chromatograph
Chromatograph System
Microscope, Photo Zeiss
X-Ray Machine

9. COMMENT AND PUBLICATION REFERENCES:

Publication references

Annual report "Wildlife Research Problems Programs Progress." United States Department of the Interior, Bureau of Sport Fisheries and Wildlife.

10. DATE OF REPORT: 12/15/69

SALMON CULTURAL LABORATORY
INSTALLATION

INTERIOR (BUR. SPORT FISH. & WILDLIFE)
AGENCY OR DEPT.

757

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Mr. Roger E. Burrows
A. TECHNICAL DIRECTOR: Mr. Roger E. Burrows

3. LOCATION: A. Longview (Nearest City) B. Cowlitz (County) C. Washington (State)

4. P. O. ADDRESS: Salmon Cultural Laboratory, 1440 Abernathy Road, Bur. Sport Fisheries and Wildlife
A. Longview (City) B. Washington (State) C. 98632 (Zip Code) D. 206 425-6072 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 6
B. ALL OTHER PERSONNEL (Total): 5

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 111,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts research to improve methods of artificial propagation of Pacific salmon and to improve the quality and survival of fish produced at salmon hatcheries. Develop facilities and equipment for use in salmon hatcheries. (06-01 Biological and Medical Sciences - Biochemistry; 06-03 Biology; 06-06 Environmental Biology; 06-19 Stress Physiology).

Current activities include:

1. Factors limiting production in rearing ponds. (06-06 Environmental biology-external influences on growth and survival).
2. Measurement of differences in fingerling salmon characteristics. (06-01 Bio-chemistry - chemical differences; 06-03 Biology - physiology).
3. Characteristics necessary for survival. (06-03 Biology - physiology).
4. Applied nutrition studies. (06-03 Biology - physiology).
5. Evaluation of incubation channel in production. (06-03 Biology - embryology; Development).
6. Evaluation stress in fingerling salmon. (06-19 Stress physiology - physiological effects temperature, drugs).
7. Development of improved rearing facilities. (Development).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

758

8. MAJOR EQUIPMENT:

Water reconditioning system.
Stamina tunnel.

9. COMMENT AND PUBLICATION REFERENCES:

Resource Publication 77 "Progress in Sport Fishery Research - 1968"
Bureau of Sport Fisheries and Wildlife, Washington, D. C. pp. 201-210. 1969.

Resource Publication 52 "The Salmon Cultural Laboratory"
Bureau of Sport Fisheries and Wildlife, Washington, D. C. 1968.

10. DATE OF REPORT: 12/15/69

SANDY HOOK MARINE LABORATORY
INSTALLATION

INTERIOR (BUR. SPORT FISH. & WILDLIFE)
AGENCY OR DEPT

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Dr. Lionel A. Walford
   A. TECHNICAL DIRECTOR: Dr. Lionel A. Walford

3. LOCATION: A. New Brunswick (Nearest City) B. Monmouth (County) C. New Jersey (State)

4. P. O. ADDRESS: Sandy Hook Marine Laboratory, P.O. Box 428 Bur. of Sport Fisheries & Wildlife
   A. Highlands (City) B. New Jersey (State) C. 07732 (Zip Code) D. 201 872-0200 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969)
   A. R&D PROFESSIONALS (Total): 25
   B. ALL OTHER PERSONNEL (Total): 34

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 864,000
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research on marine and anadromous game fishes and marine invertebrates in the sea and in estuaries involving studies on life history, behavior, environmental analysis, statistics on angling catch and effort, pollution, migration, and distribution. (06-06 Biological and Medical Sciences - Environmental Biology; 06-13 Microbiology; 08-01 Earth Sciences and Oceanography - Biological Oceanography; 08-10 Physical Oceanography).

Current studies include:

1. Hydrography of coasts and estuaries (08-10 Physical oceanography).
2. Natural history of bluefish and weakfish. (08-01 Biological oceanography).
3. Effects of waste disposal on offshore marine environments. (06-06 Environmental biology - sewage sludge and waste acid; 08-01 Biological oceanography).
4. Behavior of game fishes. (08-01 Biological oceanography).
5. Special microbiological problems. (06-13 Microbiology - bacteria; 08-01 Biological oceanography).
6. Dependence of coastal game fishes on estuaries. (08-01 Biological oceanography).
7. Experimental artificial reef ecology. (06-06 Environmental Biology - ecology; also development).
8. Distribution and biology of benthic organisms. (08-01 Biological oceanography).
9. Life history and behavior of fish on artificial reefs. (08-01 Biological oceanography).
10. Environmental analysis - distribution of Atlantic coastal game fishes. (08-01 Biological oceanography).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

760 8. MAJOR EQUIPMENT:

Electronic calculating system.
Research vessel, Challenger - 65' T boat hull.
Research vessel, Dolphin - 107', 400- ton.
35,000 gal. seawater tank for behavior studies.

9. COMMENT AND PUBLICATION REFERENCES:

Resource Publication 77 "Progress in Sport Fishery Research - 1968"
Bureau of Sport Fisheries and Wildlife, Washington, D. C. pp. 3-29. 1969.

Resource Publication 53 "Atlantic Marine Game Fish Research "
Bureau of Sport Fisheries and Wildlife, Washington, D. C. 1968.

10. DATE OF REPORT: 12/15/69

SIERRA NEVADA AQUATIC RESEARCH LABORATORY
INSTALLATION

INTERIOR (BUR. SPORT FISH. & WILDLIFE)
AGENCY OR DEPT.

761

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Mr. Norman Reimers
A. TECHNICAL DIRECTOR: Mr. Norman Reimers

3. LOCATION: A. Bishop (Nearest City) B. Mono (County) C. California (State)

4. P. O. ADDRESS: Sierra Nevada Aquatic Research Lab., Star Route 3, Box 198, Bur.Sport Fisheries and Wildlife
A. Bishop (City) B. California (State) C. 93514 (Zip Code) D. 714 935-4334 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 4
B. ALL OTHER PERSONNEL (Total): 4

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 85,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Concerned with long term studies on trout survival in cooperation with the California Department of Fish and Game. (06-01 Biological and Medical Sciences - Biochemistry; 06-03 Biological and Medical Sciences - Biology; 06-06 Environmental biology; 08-08 Earth Sciences and Oceanography - limnology).

Current research includes:

1. Studies on survival and vitality of both hatchery and wild trout in relation to the ecological and physical characteristics of stream and pond habitats. (06-03 Biology - physiology, genetics, life history; 06-19 Stress physiology - effect of environment on biological processes).
2. Physiological studies of hatchery-reared trout after their release into streams and lakes. (06-01 Biochemistry - histochemistry of various systems; metabolism; 06-06 Environmental biology - external influences of biological processes of fish; 06-03 Biology - physiology).
3. Investigation of the factors responsible for varying trout productivity of alpine lakes and streams. (06-03 Biology - behavior, life history; 08-08 Limnology - physical, chemical, and biological conditions in fresh water).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

762 8. MAJOR EQUIPMENT:

Experimental stream - 1.4 miles.

9. COMMENT AND PUBLICATION REFERENCES:

Resource Publication 77 'Progress in Sport Fishery Research - 1968"
Bureau of Sport Fisheries and Wildlife, Washington, D. C. pp. 211-217. 1969.

Resource Publication 50 "Sierra Nevada Aquatic Research Laboratory"
Bureau of Sport Fisheries and Wildlife, Washington, D. C. 1968.

10. DATE OF REPORT: 12/15/69

SOUTH CENTRAL RESERVOIR INVESTIGATIONS
INSTALLATION

INTERIOR (BUR.SPORT FISH. & WILDLIFE)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Mr. Thomas O. Duncan
A. TECHNICAL DIRECTOR: Mr. Thomas O. Duncan

3. LOCATION: A. Fayetteville (Nearest City) B. Washington (County) C. Arkansas (State)

4. P. O. ADDRESS: South Central Reservoir Investigations, 113 South East Street, Bureau of Sport Fisheries and Wildlife
A. Fayetteville (City) B. Arkansas (State) C. 72701 (Zip Code) D. 501 443-3585 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 7
B. ALL OTHER PERSONNEL (Total): 3

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 162,000
B. EXTRAMURAL (Total): $ 8,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research concerned with the differences in a new impoundment and a 20-year old reservoir.

Current investigations include:

1. Life history of reservoir fishes. (06-03 Biological - zoology).
2. Population dynamics of reservoir fishes. (06-03 Biological - zoology).
3. Limnological investigations. (08-08 Hydrology and limnology - physical, chemical, and biological conditions in fresh water bodies).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

764 8. MAJOR EQUIPMENT:

Non-powered barge 20' x 63' utilized as floating laboratory on Beaver Reservoir.

9. COMMENT AND PUBLICATION REFERENCES:

Resource Publication 77 "Progress in Sport Fishery Research - 1968"
Bureau of Sport Fisheries and Wildlife, Washington, D. C. pp. 75-89. 1969.

10. DATE OF REPORT: 12/15/69

SOUTHEASTERN FISH CONTROL LABORATORY
INSTALLATION

INTERIOR (BUR. SPORT FISH & WILDLIFE)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Robert E. Lennon
A. TECHNICAL DIRECTOR: Mr. Ralph M. Burress

3. LOCATION: A. Columbus (Nearest City) B. Meriweather (County) C. Georgia (State)

4. P. O. ADDRESS: Southeastern Fish Control Laboratory
P.O. Box 9, Bureau of Sport Fisheries and Wildlife
A. Warm Springs (City) B. Georgia (State) C. 31830 (Zip Code) D. 404 655-3573 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 3
B. ALL OTHER PERSONNEL (Total): 6

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 135,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

This is a sub-laboratory of the Fish Control Laboratory, La Crosse, Wisconsin and supplements studies conducted at La Crosse. Research is conducted to develop principles and methods of controlling the abundance and activities of fish populations. (06-01) Biological and Medical Sciences - Biochemistry; 06-03 Biology; 06-20 Toxicology).

Current investigations include:

1. Evaluation of fish control agents in the field. (06-20) Toxicology).
2. Development of analytical methods for residues of fish control agents. (06-01) Biochemistry - Methods).
3. Fate of control agents in fish. (06-20 Toxicology - detection).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES
Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Gas chromatograph.
Atomic absorption spectrophotometer.
Infrared spectrophotometer.

9. COMMENT AND PUBLICATION REFERENCES:

Resource Publication 77 "Progress in Sport Fishery Research - 1968"
Bureau of Sport Fisheries and Wildlife, Washington, D. C. pp. 114-132. 1969.

10. DATE OF REPORT: 12/15/69

SOUTH EASTERN FISH CULTURAL LABORATORY
INSTALLATION

INTERIOR (BUR. SPORT FISH & WILDLIFE)
AGENCY OR DEPT.

767

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Mr. Kermit E. Sneed
A. TECHNICAL DIRECTOR: Dr. Harry K. Dupree

3. LOCATION: A. Selma (Nearest City) B. Perry (County) C. Alabama (State)

4. P. O. ADDRESS: Southeastern Fish Cultural Laboratory, Bur. of Fish & Wildlife
A. Marion (City) B. Alabama (State) C. 36756 (Zip Code) D. 205 683-7911 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 4
B. ALL OTHER PERSONNEL (Total): 2

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 97,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Efforts are directed toward basic biological problems concerned with the development of warmwater fish-cultural practices, especially those related to the production of food fish in the impounded waters of southern States. (06-03 Biological and Medical Sciences - Biology; 06-06 Environmental Biology).

Current investigations include:

1. Nutrition of catfishes. (06-03 Biology - physiology).
2. General characteristics of the blood of fishes. (06-03 Biology - physiology).
3. Studies on the desirability of catfish hybrids. (06-03 Biology - genetics).
4. Pesticide effects on warmwater fish husbandry. (06-06 Environmental biology - pesticides).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Two chromatographs, Beckman GC-5

9. COMMENT AND PUBLICATION REFERENCES:

Resource Publication 77 "Progress in Sport Fishery Research - 1968"
Bureau of Sport Fisheries and Wildlife, Washington, D. C. pp. 218-238. 1969.

10. DATE OF REPORT: 12/15/69

TIBURON MARINE LABORATORY
INSTALLATION

INTERIOR (BUR. SPORT FISH & WILDLIFE)
AGENCY OR DEPT.

769

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Mr. Gerlad B. Talbot
A. TECHNICAL DIRECTOR: Mr. Gerlad B. Talbot

3. LOCATION: A. San Francisco (Nearest City) B. Marin (County) C. California (State)

4. P. O. ADDRESS: Tiburon Marine Laboratory
P.O. Box 98, Bureau of Sport Fisheries and Wildlife
A. Tiburon (City) B. California (State) C. 94920 (Zip Code) D. 415 435-4577 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 11
B. ALL OTHER PERSONNEL (Total): 3

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 206,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts research on marine game fish of the Pacific coast. (08-01 Earth Sciences and Oceanography - Biological Oceanography; 08-10 Physical Oceanography).

Current investigations are concerned with:

1. Pacific Coast Environment. (08-10 Physical oceanography - physical properties).
2. Population dynamics of marine game fish. (08-01 Biological oceanography).
3. Cooperative marlin and sailfish tagging program. (08-01 Biological oceanography).
4. Life history of Pacific marine game fish. (08-01 Biological oceanography).
5. Behavior and ecology of marine game fish. (08-01 Biological oceanography).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

770 8. MAJOR EQUIPMENT:

No special equipment

9. COMMENT AND PUBLICATION REFERENCES:

Resource Publication 77 "Progress in Sport Fishery Research - 1968" Bureau of Sport Fisheries and Wildlife, Washington, D. C. pp. 30-44. 1969.

Resource Publication 51 "Tiburon Marine Laboratory" Bureau of Sport Fisheries and Wildlife, Washington, D. C. 1968.

10. DATE OF REPORT: 12/15/69

WESTERN FISH DISEASE LABORATORY
INSTALLATION

INTERIOR (BUR. SPORT FISH. & WILDLIFE)
AGENCY OR DEPT.

771

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Dr. Robert R. Rucker
   A. TECHNICAL DIRECTOR: Dr. Robert R. Rucker

3. LOCATION: A. Seattle (Nearest City) B. King (County) C. Washington (State)

4. P. O. ADDRESS: Western Fish Disease Laboratory, Building 204, Sand Point Naval Air Station, Bur. of Sport Fish. & Wildlife
   A. Seattle (City) B. Washington (State) C. 98115 (Zip Code) D. 206-523-0550 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 6
   B. ALL OTHER PERSONNEL (Total): 3

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 162,000
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Studies are conducted on the nature and prevention of communicable diseases of fish. Research primarily concerns parasites and diseases of western salmon and trout, but is not limited to cold-water species. (06-01 Biological and Medical Sciences; 06-03 Biology; 06-13 Microbiology).

Current projects include:

1. Isolation of viruses from fishes. (06-03 Biology - pathology and physiology; 06-13 Microbiology - viruses).
2. Histopathology of salmonid fishes. (06-03 Biology - physiology and pathology; 06-13 Microbiology - bacteria).
3. Biochemical changes in fish diseases. (06-01 Biochemistry- chemical processes which take place in biological systems of fish).
4. Anti-microbial agents for control of fish diseases. (06-03 Biology).
5. Isolation and evaluation of bacterial toxins. (06-01 Biochemistry - chemical composition of myxobacteria; 06-13 Microbiology - bacteria).
6. Oral immunization of hatchery reared salmonids. (06-03 Biology).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

772 8. MAJOR EQUIPMENT:

No special equipment

9. COMMENT AND PUBLICATION REFERENCES:

Resource Publication 77 "Progress in Sport Fishery Research - 1968"
Bureau of Sport Fisheries and Wildlife, Washington, D. C. pp. 146-157. 1969.

Resource Publication 73 "Laboratories for Fish Disease Research"
Bureau of Sport Fisheries and Wildlife, Washington, D. C. 1968.

10. DATE OF REPORT: 12/15/69

WESTERN FISH NUTRITION LABORATORY
INSTALLATION

INTERIOR (BUR. SPORT FISH. & WILDLIFE)
AGENCY OR DEPT.

773

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
   (1) ☒ GOVERNMENT-OPERATED
   (2) ☐ FFRDC
   (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
   (1) ☐ GOVERNMENT-OPERATED
   (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. John E. Halver
A. TECHNICAL DIRECTOR: Dr. John E. Halver

3. LOCATION: A. Portland (Oregon) (Nearest City) B. Skamania (County) C. Washington (State)

4. P. O. ADDRESS: Western Fish Nutrition Laboratory, Bureau of Sport Fisheries & Wildlife
A. Cook (City) B. Washington (State) C. 98605 (Zip Code) D. 509-538-2311 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 9
B. ALL OTHER PERSONNEL (Total): 11

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 275,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Investigations are carried out to determine the nutritional requirements of those species of Pacific salmon and other salmonids which are involved in the Bureau's conservation program (06-01 Biological and Medical Sciences - Biochemistry; 06-03 Biology).

Current research involves:

1. Vitamin requirements of coho and sockeye salmon and cutthroat trout. (06-01 Biochemistry - studies of chemical processes; 06-03 Biology - physiology).
2. Amino acid requirements of chinook and coho salmon and cutthroat trout (06-01 Biochemistry - studies of chemical processes; 06-03 Biology - physiology).
3. Fat requirements of salmonids. (06-01 Biochemistry - studies of chemical processes; 06-03 Biology - physiology).
4. Digestive enzymes of salmonids. (06-01 Biochemistry - studies of chemical processes; 06-03 Biology - physiology).
5. Enzymes of intermediary metabolism. (06-01 Biochemistry - studies of chemical processes; 06-03 Biology - physiology).
6. Nutritional components in hepatogenesis. (06-03 Biology - pathology).
7. Metabolic role of inorganic elements. (06-01 Biochemistry - studies of chemical processes; 06-03 Biology - physiology).
8. Physiology of salmonids. (06-03 Biology - physiology).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT.

Amino acid analyzer
DU spectrophotometer attachments
Atomic absorption spectrophotometer with attachments
Spinco ultracentrifuge
Tricarb liquid scintillation counter
Spectrophotometer, P-E Brand, Model #237
Library of histological material - 55,000 preparations of normal and diseased fish. Tissues are available for loan to scientists.

9. COMMENT AND PUBLICATION REFERENCES:

Resource Publication 77 "Progress in Sport Fishery Research - 1968"
Bureau of Sport Fisheries and Wildlife, Washington, D. C. pp. 171-192. 1969.

Resource Publication 81 "The Western Fish Nutrition Laboratory"
Bureau of Sport Fisheries and Wildlife, Washington, D. C. 1969.

10. DATE OF REPORT: 12/15/69

WILDLIFE RESEARCH CENTER
INSTALLATION

INTERIOR (BUR. SPORT FISH. & WILDLIFE)
AGENCY OR DEPT.

775

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Jack F. Welch A. TECHNICAL DIRECTOR: same

3. LOCATION: A. Denver (Nearest City) B. Jefferson (County) C. Colorado (State)

4. P. O. ADDRESS: Denver Wildlife Research Center, Building 16, Denver Federal Center
Bur. of Sport Fisheries & Wildlife

A. Denver (City) B. Colorado (State) C. 80225 (Zip Code) D. 303-233-6245 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 80
B. ALL OTHER PERSONNEL (Total): 45

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,900,000
B. EXTRAMURAL (Total): $ 600,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conduct research on methods of controlling nuisance and destructive populations of birds and animals. 06-03 Biology.

Studies to determine acute and chronic toxicity evaluations of pesticides and to learn their ecological and physiological effects on wildlife species. 06-20 Toxicology, 06-03 Biology.

Research in forest-wildlife relationships to seek methods leading to the maintenance of optimum wildlife populations consonant with the multiple use philosophy. 06-03 Biology.

Studies to investigate the principal causative agents of wildlife diseases with the objective of accumulating information on which to base feasible control measures. 06-03 Biology

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

776

8. MAJOR EQUIPMENT:

Infra-red spectrophotometer IR-5
Linquid Scintillation spectrometer, 3 channel, 701 systems
Dual over gas chromatograph with electron capture detectors
GC-2 Gas chromatograph-flame ionization detector
Physiograph Six and Auxillary equipment
Spectrograph, dual grating
Spectrophotometer, recording infrared
Centrifuge VW&R Mdl. B-60
Chromatograph, gas
Counter, Electronic Cell counter and cell size analyzer
Densitometer, comparator microphotometer

9. COMMENT AND PUBLICATION REFERENCES:

Publication reference:

Annual report "Wildlife Research Problems Programs Progress." United States Department of the Interior, Bureau of Sport Fisheries & Wildlife.

10. DATE OF REPORT: 12-15-69

Geological Survey Headquarters
INSTALLATION

INTERIOR (USGS)
AGENCY OR DEPT.

777

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: ______

2. DIRECTOR: William T. Pecora A. TECHNICAL DIRECTOR: William T. Pecora

3. LOCATION: A. Washington, D. C. (Nearest City) B. --- (County) C. --- (State)

4. P. O. ADDRESS: Director, U. S. Geological Survey

A. Washington, D. C. (City) B. --- (State) C. 20242 (Zip Code) D. 202-343-3888 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 849
B. ALL OTHER PERSONNEL (Total): 1478

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 40 million
B. EXTRAMURAL (Total): $ slight

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Geologic research to determine and appraise the mineral and mineral fuels resources and the geologic structure of the U.S.: geologic mapping; research into geologic principles and processes; specialized research in geochemistry, geophysics, and paleontology; experimental satellite-collected data on the natural and man-made features of the earth's surface. (08-Earth Sciences and Oceanography: all Group codes)

Research in topographic surveying and mapping: control surveys, aerial photography, photogrammetry, cartography, instrumentation, prepare and publish National Atlas of the U.S. (08-Earth Sciences: 02 Cartography, 05 Geodesy, 06 Geography)

Prepare and publish maps and reports of mineral and water resources on Federal lands: geologic and engineering advice, classify as to value for leasable minerals or for reservoir and waterpower sites, insure maximum utilization and minimum damage or pollution to total environment. (08-Earth Sciences: 07 Geology and Mineralogy, 09 Mining Engineering)

Determine source, quantity, quality, distribution, movement, and availability of surface and ground waters: research into magnitude, frequency, and relation of floods and droughts to climatic and physiographic factors; evaluate chemical and physical quality of water resources and relation of water quality and suspended sediment load to the hydrologic cycle; hydrologic studies of the interrelations between climate, topography, vegetation, soils and water supply. (08-Earth Sciences and Oceanography: 07 Geology and Mineralogy, 08 Hydrology and Limnology, 13 Soil Mechanics)

A. ADDITIONAL COSATI CODES: 04-02 Atmospheric Sciences-Meteorology; 06-06 Environmental Biology; 12-01 Mathematics and Statistics; 20-02 Physics-Crystallography; 20-04 Physics-Fluid Mechanics

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

The Geological Survey utilizes a wide variety of laboratory instrumentation in the solid earth sciences, water resources investigations, and topography. These include research facilities at the Washington center for analytical chemistry, geophysics, geochemistry, petrology and petrography, mineralogy, photography, topography, water quality and hydrology, paleontology, digital computers (IBM System 360), and mobile laboratories which do analytical work in the field at the point of observation.

The Hawaiian Volcano Observatory (Hawaii National Park) is a branch-level field installation reporting to the Office of the Chief Geologist, Washington, D.C., with a small permanent staff of scientists, which accommodates a far larger group of visiting scientific investigators (from USGS and other Federal and non-Federal organizations) at various times during the year. The Observatory monitors the active volcanoes of Hawaii and conducts basic research on volcanic processes and methods of prediction.

9. COMMENT AND PUBLICATION REFERENCES: The results of Geological Survey research are published in bulletins; professional papers; circulars; topographic, hydrologic, geologic and special map series; reports printed by cooperative agencies; and in trade and technical journals.

The Geological Survey has four major program R&D Divisions, all headquartered in Washington, D.C.: Geologic-Conservation-Topographic-Water Resources. Each Division is organized nationwide in its own fashion to best accomplish its work; there is no overall consistent organizational pattern. As a result in each of our major centers (Menlo Park, Calif.; Denver, Colo.; and Washington, D. C.) there are headquartered a number of separate Geologic Division branches, a branch and/or district office of the Conservation Division, and regional offices of the Topographic and Water Resources Divisions. There is, then, no single overall "Director" in the field center; the necessary local administration is accomplished through committee interaction and the Management Officer, who represents the Administrative Division. In addition, we have offices in every State engaged in State cooperative R&D work (not reportable).

Nature is essentially our real "laboratory"; our professionals obtain their information from field studies, specimens, measurements, on-site analysis and observations. During periods of non-field activity, they are headquartered in one of the centers. It is this geographic assembling of our scientists and engineers that constitutes a reportable "laboratory" in our viewpoint--a place where colleagues interact, compare results of field investigations, obtain analytical and computer information on water and mineral samples from facilities located at these centers, think, synthesize, and prepare research data, maps and scientific reports for publication. All separate organizational units located in the centers are responsible, technically and administratively, direct to headquarters in Washington, D.C., and we have reported only professionals engaged in R&D work.

10. DATE OF REPORT: October 24, 1969

Center for Astrogeology — INSTALLATION
INTERIOR (USGS) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Alfred H. Chidester
A. TECHNICAL DIRECTOR: Alfred H. Chidester

3. LOCATION: A. Flagstaff *(Nearest City)* B. Coconino *(County)* C. Arizona *(State)*

4. P. O. ADDRESS: Center for Astrogeology, U.S.Geological Survey, 601 East Cedar Avenue
A. Flagstaff *(City)* B. Arizona *(State)* C. 86001 *(Zip Code)* D. 602-774-1455 *(Telephone (Area Code & No.))*

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 54
B. ALL OTHER PERSONNEL (Total): 79

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 2 1/2 million
B. EXTRAMURAL (Total): $ slight

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Lunar geologic mapping; study of impact craters and processes; chemical, petrographic and physical investigations of tektites and other materials of possible lunar origin; geologic training of astronauts; development of plans and instrumentation for manned and unmanned geologic and geophysical lunar experiments; planetary geology; and allied research activities. (08-07 - Earth Sciences, Geology, Astrogeology)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

IBM Computer System 360, Model 30
Photographic laboratory

9. COMMENT AND PUBLICATION REFERENCES:

The results of Geological Survey research are published in bulletins, professional papers, circulars, geologic and related map series, reports printed by cooperative agencies, and in trade and technical journals.

Unlike the other Geological Survey field centers where scientists and engineers representing many disciplines and specialties are assembled, the research facilities at Flagstaff are far more highly specialized within the field of astrogeology. These specialized activities were initially concentrated at Flagstaff in support of anticipated NASA programs, with particular emphasis on lunar mapping and scientific planning of lunar landing sites and experimentation. Flagstaff offers nearby terrain most similar to lunar surface conditions, good weather conditions for telescopic viewing, and the presence of other Federal and non-Federal organizations with appropriate equipment, similar programs, and scientific colleagues from which a close-knit academic science-oriented community has developed. Geological Survey astrogeologic activities in Flagstaff report to the Office of the Chief Geologist in Washington, D. C.

10. DATE OF REPORT: October 24, 1969

Pacific Coast Region Center
INSTALLATION

INTERIOR (USGS)
AGENCY OR DEPT.

781

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: none (see comments)
A. TECHNICAL DIRECTOR: none (see comments)

3. LOCATION: A. Menlo Park (Nearest City) B. San Mateo (County) C. California (State)

4. P. O. ADDRESS: Management Officer, Pacific Coast Reg. Center, USGS,345 Middlefield Road
A. Menlo Park (City) B. California (State) C. 94025 (Zip Code) D. 415-325-2211 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 425
B. ALL OTHER PERSONNEL (Total): 556

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 17 million
B. EXTRAMURAL (Total): $ slight

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Geologic research to determine and appraise the mineral and mineral fuels resources and the geologic structure of the U.S.: geologic mapping; research into geologic principles and processes; specialized research in geochemistry, geophysics, and paleontology; experimental satellite-collected data on the natural and man-made features of the earth's surface. (08-Earth Sciences and Oceanography: all Group codes)

Research in topographic surveying and mapping: control surveys, aerial photography, photogrammetry, cartography, instrumentation, prepare and publish National Atlas of the U.S. (08-Earth Sciences: 02 Cartography, 05 Geodesy, 06 Geography)

Prepare and publish maps and reports of mineral and water resources on Federal lands: geologic and engineering advice, classify as to value for leasable minerals or for reservoir and waterpower sites, insure maximum utilization and minimum damage or pollution to total environment. (08-Earth Sciences: 07 Geology and Mineralogy, 09 Mining Engineering)

Determine source, quantity, quality, distribution, movement, and availability of surface and ground waters: research into magnitude, frequency, and relation of floods and droughts to climatic and physiographic factors; evaluate chemical and physical qualtiy of water resources and relation of water quality and suspended sediment load to the hydrologic cycle; hydrologic studies of the interrelations between climate, topography, vegetation, soils and water supply. (08-Earth Sciences and Oceanography: 07 Geology and Mineralogy, 08 Hydrology and Limnology, 13 Soil Mechanics)

A. ADDITIONAL COSATI CODES: 04-02 Atmospheric Sciences-Meteorology; 06-06 Environmental Biology; 12-01 Mathematics and Statistics; 20-02 Physics-Crystallography; 20-04 Physics-Fluid Mechanics

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

The Geological Survey utilizes a wide variety of laboratory instrumentation in the solid earth sciences, water resources investigations, and topography. These include research facilities at the Menlo Park Center for astrogeology, volcanology, geophysics, geochemistry, seismology, mineralogy, topography, water quality and hydrology, analog modeling and digital computers (IBM System 360), and mobile laboratories which do analytical work in the field at the point of observation.

9. COMMENT AND PUBLICATION REFERENCES: The results of Geological Survey research are published in bulletins; professional papers; circulars; topographic, hydrologic, geologic and special map series; reports printed by cooperative agencies; and in trade and technical journals.

The Geological Survey has four major program R&D Divisions, all headquartered in Washington, D.C.: Geologic-Conservation-Topographic-Water Resources. Each Division is organized nationwide in its own fashion to best accomplish its work; there is no overall consistent organizational pattern. As a result in each of our major centers (Menlo Park, Calif.; Denver, Colo.; and Washington, D.C.) there are headquartered a number of separate Geologic Division branches, a branch and/or district office of the Conservation Division, and regional offices of the Topographic and Water Resources Divisions. There is, then, no single overall "Director" in the field center; the necessary local administration is accomplished through committee interaction and the Management Officer, who represents the Administrative Division. In addition, we have offices in every State engaged in state cooperative R&D work (not reportable).

Nature is essentially our real "laboratory"; our professionals obtain their information from field studies, specimens, measurements, on-site analysis and observations. During periods of non-field activity, they are headquartered in one of the centers. It is this geographic assembling of our scientists and engineers that constitutes a reportable "laboratory" in our viewpoint--a place where colleagues interact, compare results of field investigations, obtain analytical and computer information on water and mineral samples from facilities located at these centers, think, synthesize, and prepare research data, maps and scientific reports for publication. All separate organizational units located in the centers are responsible, technically and administratively, direct to headquarters in Washington, D.C., and we have reported only professionals engaged in R&D work.

10. DATE OF REPORT: October 24, 1969

Rocky Mountain Region Center
INSTALLATION

INTERIOR (USGS)
AGENCY OR DEPT.

783

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: none (see comments)
A. TECHNICAL DIRECTOR: none (see comments)

3. LOCATION: A. Denver (Nearest City) B. Jefferson (County) C. Colorado (State)

4. P. O. ADDRESS Management Officer, Rocky Mt. Region Center, USGS, Denver Federal Center
A. Denver (City) B. Colorado (State) C. 80225 (Zip Code) D. 303-233-8602 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 609
B. ALL OTHER PERSONNEL (Total): 778

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 24 million
B. EXTRAMURAL (Total): $ Slight

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Geologic research to determine and appraise the mineral and mineral fuels resources and the geologic structure of the U.S.: geologic mapping; research into geologic principles and processes; specialized research in geochemistry, geophysics, and paleontology; experimental satellite-collected data on the natural and man-made features of the earth's surface. (08-Earth Sciences and Oceanography: all Group codes)

Research in topographic surveying and mapping: control surveys, aerial photography, photogrammetry, cartography, instrumentation, prepare and publish National Atlas of the U.S. (08-Earth Sciences: 02 Cartography, 05 Geodesy, 06 Geography)

Prepare and publish maps and reports of mineral and water resources on Federal lands: geologic and engineering advice, classify as to value for leasable minerals or for reservoir and waterpower sites, insure maximum utilization and minimum damage or pollution to total environment. (08-Earth Sciences: 07 Geology and Mineralogy, 09 Mining Engineering)

Determine source, quantity, quality, distribution, movement, and availability of surface and ground waters: research into magnitude, frequency, and relation of floods and droughts to climatic and physiographic factors; evaluate chemical and physical quality of water resources and relation of water quality and suspended sediment load to the hydrologic cycle; hydrologic studies of the interrelations between climate, topography, vegetation, soils and water supply. (08-Earth Sciences and Oceanography: 07 Geology and Mineralogy, 08 Hydrology and Limnology, 13 Soil Mechanics)

A. ADDITIONAL COSATI CODES: 04-02 Atmospheric Sciences-Meteorology; 06-06 Environmental Biology; 12-01 Mathematics and Statistics; 20-02 Physics-Crystallography; 20-04 Physics-Fluid Mechanics

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

The Geological Survey utilizes a wide variety of laboratory instrumentation in the solid earth sciences, water resources investigations, and topography. These include research facilities at the Denver center for analytical chemistry, nuclear geology and hydrology, geophysics, geochemistry, petrology and petrography, seismology, mineralogy, photography, topography, water quality and hydrology, analog modeling and digital computers (IBM System 360), and mobile laboratories which do analytical work in the field at the point of observation.

9. COMMENT AND PUBLICATION REFERENCES: The results of Geological Survey research are published in bulletins; professional papers; circulars; topographic, hydrologic, geologic and special map series; reports printed by cooperative agencies; and in trade and technical journals.

The Geological Survey has four major program R&D Divisions, all headquartered in Washington, D.C.: Geologic-Conservation-Topographic-Water Resources. Each Division is organized nationwide in its own fashion to best accomplish its work; there is no overall consistent organizational pattern. As a result in each of our major centers (Menlo Park, Calif.; Denver, Colo.; and Washington, D.C.) there are headquartered a number of separate Geologic Division branches, a branch and/or district office of the Conservation Division, and regional offices of the Topographic and Water Resources Divisions. There is, then, no single overall "Director" in the field center; the necessary local administration is accomplished through committee interaction and the Management Officer, who represents the Administrative Division. In addition, we have offices in every State engaged in state cooperative R&D work (not reportable).

Nature is essentially our real "laboratory"; our professionals obtain their information from field studies, specimens, measurements, on-site analysis and observations. During periods of non-field activity, they are headquartered in one of the centers. It is this geographic assembling of our scientists and engineers that constitutes a reportable "laboratory" in our viewpoint--a place where colleagues interact, compare results of field investigations, obtain analytical and computer information on water and mineral samples from facilities located at these centers, think, synthesize, and prepare research data, maps and scientific reports for publication. All separate organizational units located in the centers are responsible, technically and administratively, direct to headquarters in Washington, D.C., and we have reported only professionals engaged in R&D work.

10. DATE OF REPORT: October 24, 1969

ARCHEOLOGICAL CENTER - MIDWEST
INSTALLATION

INTERIOR (NPS)
AGENCY OR DEPT.

785

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Dr. Wilfred D. Logan A. TECHNICAL DIRECTOR: Dr. Wilfred D. Logan

3. LOCATION: A. Lincoln (Nearest City) B. Lancaster (County) C. Nebraska (State)

4. P. O. ADDRESS: Midwest Archeological Center, National Park Service, 2605 North 27th St.
A. Lincoln (City) B. Nebraska (State) C. 68504 (Zip Code) D. 402-475-3666 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 12
B. ALL OTHER PERSONNEL (Total): 5

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 230,000
B. EXTRAMURAL (Total): $ 90,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The National Park Service conducts modest research programs in the fields of archeology, history, and natural history.

Archeological investigation and salvage are carried on in various river basins in order to recover and evaluate scientific data before it is lost through inundation.

Within Park Service areas, the program is conducted to preserve archeological remains and to provide material which will increase understanding of the areas' significance.

Research in history produces information which serves as a basis for rehabilitation or reconstruction of historic sites and facilities and for increasing visitor enjoyment through a fuller and more accurate delineation of the historical meaning and importance of events and places.

In botany, zoology, and geology, projects are carried on within Park Service areas which provide information essential as a background for determining policies and procedures involving management and protection. Information thus gained serves as a basis for explaining area significance to visitors through various interpretive devices.

(Behavioral and Social Sciences - History, 05-04; Archeology, 05-06)
(Earth Sciences and Oceanography - Cartography 08-02, Geography 08-06)

A. ADDITIONAL COSATI CODES:
06-03 human anatomy and pathology, human ecology, natural history

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

9. COMMENT AND PUBLICATION REFERENCES:

National Park Service Publications

1. Archeological Research Series - detailed professional reports of major archeological work in National Park Service Areas and in the River Basin Salvage Program are available at the National Park Service Headquarters, Washington, D. C. and in the respective Archeological Centers.

10. DATE OF REPORT:

ARCHEOLOGICAL CENTER - SOUTHEAST
INSTALLATION

INTERIOR (NPS)
AGENCY OR DEPT.

787

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. John W. Griffin
A. TECHNICAL DIRECTOR: Dr. John W. Griffin

3. LOCATION: A. Macon (Nearest City) B. Bibb (County) C. Georgia (State)

4. P. O. ADDRESS: Southeast Archeological Center, National Park Service, P.O. Box 4547
A. Macon (City) B. Georgia (State) C. 31208 (Zip Code) D. 912-745-2243 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 4
B. ALL OTHER PERSONNEL (Total): 2

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 94,000
B. EXTRAMURAL (Total): $ 70,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The National Park Service conducts modest research programs in the fields of archeology, history, and natural history.

Archeological investigation and salvage are carried on in various river basins in order to recover and evaluate scientific data before it is lost through inundation.

Within Park Service areas, the program is conducted to preserve archeological remains and to provide material which will increase understanding of the areas' significance.

Research in history produces information which serves as a basis for rehabilitation or reconstruction of historic sites and facilities and for increasing visitor enjoyment through a fuller and more accurate delineation of the historical meaning and importance of events and places.

In botany, zoology, and geology, projects are carried on within Park Service areas which provide information essential as a background for determining policies and procedures involving management and protection. Information thus gained serves as a basis for explaining area significance to visitors through various interpretive devices.

(Behavioral and Social Sciences - History, 05-04; Archeology, 05-06)
(Earth Sciences and Oceanography - Cartography 08-02, Geography 08-06)

A. ADDITIONAL COSATI CODES:

06-03 human anatomy and pathology, human ecology, natural history

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

9. COMMENT AND PUBLICATION REFERENCES:

National Park Service Publications

1. Archeological Research Series - detailed professional reports of major archeological work in National Park Service Areas and in the River Basin Salvage Program are available at the National Park Service Headquarters, Washington, D. C. and in the respective Archeological Centers.

10. DATE OF REPORT:

ARCHEOLOGICAL CENTER - SOUTHWEST
INSTALLATION

INTERIOR (NPS)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Vacant
   A. TECHNICAL DIRECTOR: Rex L. Wilson

3. LOCATION: A. Globe (Nearest City) B. Gila (County) C. Arizona (State)

4. P. O. ADDRESS: Southwest Archeological Center, National Park Service, P.O. Box 1562
   A. Gila Pueblo, Globe (City) B. Arizona (State) C. 85501 (Zip Code) D. 602-425-7131 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 14
   B. ALL OTHER PERSONNEL (Total): 5

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 328,000
   B. EXTRAMURAL (Total): $ 230,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The National Park Service conducts modest research programs in the fields of archeology, history, and natural history.

Archeological investigation and salvage are carried on in various river basins in order to recover and evaluate scientific data before it is lost through inundation.

Within Park Service areas, the program is conducted to preserve archeological remains and to provide material which will increase understanding of the areas' significance.

Research in history produces information which serves as a basis for rehabilitation or reconstruction of historic sites and facilities and for increasing visitor enjoyment through a fuller and more accurate delineation of the historical meaning and importance of events and places.

In botany, zoology, and geology, projects are carried on within Park Service areas which provide information essential as a background for determining policies and procedures involving management and protection. Information thus gained serves as a basis for explaining area significance to visitors through various interpretive devices.

(Behavioral and Social Sciences - History, 05-04; Archeology, 05-06)
(Earth Sciences and Oceanography - Cartography 08-02, Geography 08-06)

A. ADDITIONAL COSATI CODES:
06-03 human anatomy and pathology, human ecology, natural history

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

8. MAJOR EQUIPMENT:

9. COMMENT AND PUBLICATION REFERENCES:

National Park Service Publications

1. Archeological Research Series - detailed professional reports of major archeological work in National Park Service Areas and in the River Basin Salvage Program are available at the National Park Service Headquarters, Washington, D. C. and in the respective Archeological Centers.

10. DATE OF REPORT:

PLANT PATHOLOGY LABORATORY
INSTALLATION

INTERIOR (NPS)
AGENCY OR DEPT.

791

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Horace V. Wester
   A. TECHNICAL DIRECTOR: Horace V. Wester

3. LOCATION: A. Washington, D. C. (Nearest City) B. (County) C. (State)

4. P. O. ADDRESS: Plant Pathology Laboratory, National Park Service, Dept. of Interior
   A. Washington, D. C. (City) B. (State) C. 20240 (Zip Code) D. 202-381-7353 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 2
   B. ALL OTHER PERSONNEL (Total): 3

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 50,000
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

(06-06)

Research in disease and environmental influences related to trees, shrubs and turf in the urban setting (with Dutch elm disease diagnostic service.)

A. ADDITIONAL COSATI CODES:

none

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

None (basic biological laboratory equipment available)

9. COMMENT AND PUBLICATION REFERENCES:

National Park Service Tree Preservation Bulletin (1-6), Government Printing Office.

10. DATE OF REPORT: October 10, 1969

TEST FACILITY, CALIFORNIA
INSTALLATION

INTERIOR (OFFICE OF SALINE WATER)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR: San Diego Gas & Electric Co. & Catalytic, Incorporated

2. DIRECTOR: Stewart F. Mulford
   A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Chula Vista *(Nearest City)* B. San Diego *(County)* C. California *(State)*

4. P. O. ADDRESS: 990 Bay Boulevard
   A. Chula Vista *(City)* B. Calif. *(State)* C. 92011 *(Zip Code)* D. 714-293-5700 *(Telephone (Area Code & No.)*

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 17
   B. ALL OTHER PERSONNEL (Total): 46

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 1,660,000
   B. EXTRAMURAL (Total): $ N. A.

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes): 13-02

The Facility is operated to supply all utilities and services required for the test-operation developmental evaluation of 2 sea water conversion plants and several pilot plants.

A. ADDITIONAL COSATI CODES:

13-08 and 13-11

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

1 - Multistage-flash process sea water conversion module with an output capacity of 2.3 million gallons per day.

1 - Improved multi-stage flash process sea water conversion plant with an output capacity of 1 million gallons per day.

Laboratory, shops and power plant.

9. COMMENT AND PUBLICATION REFERENCES:

The Saline Water Conversion Report contains additional details. It is available from the U.S. Government Printing Office.

10. DATE OF REPORT: March 19, 1970

TEST FACILITY, NEW MEXICO
INSTALLATION

INTERIOR (OFFICE OF SALINE WATER)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: Burns & Roe Construction Corporation

2. DIRECTOR: Charles Grua
A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Roswell (Nearest City) B. Chaves (County) C. New Mexico (State)

4. P. O. ADDRESS: P.O. Box 2208
A. Roswell (City) B. N. M. (State) C. 88201 (Zip Code) D. 505-623-0531 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 4
B. ALL OTHER PERSONNEL (Total): 27

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 975,000
B. EXTRAMURAL (Total): $ N.A.

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes): 13-02

The Facility is operated to supply all utilities and services required for the test operation developmental evaluation of a brackish water conversion plant, and brackish water pilot plants.

A. ADDITIONAL COSATI CODES:

13-08 & 13-11

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

1 - Vapor compression distillation brackish water plant with an output capacity of 1 million gallons per day.

10 - Pilot units of varying output for testing new processes to convert brackish water to potable water.

Laboratory, shops, boiler and Brackish Water Test Center for blending and storage of water.

9. COMMENT AND PUBLICATION REFERENCES:

The Saline Water Conversion Report, published annually contains additional details about this Facility. Each year a special report is prepared and issued as an OSW R&D Progress Report.

Published reports are:

Nos. 169, 170, 254, 362, 421 and 529.

All reports are available from the US GPO.

10. DATE OF REPORT: March 19, 1970

TEST FACILITY, NORTH CAROLINA
INSTALLATION

INTERIOR (OFFICE OF SALINE WATER)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Wilfred J. Hahn
   A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Wrightsville Beach (Nearest City) B. New Hanover (County) C. N. C. (State)

4. P. O. ADDRESS: P. O. Box 597
   A. Wrightsville Beach (City) B. N. C. (State) C. 28480 (Zip Code) D. 919-763-9642 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 11
   B. ALL OTHER PERSONNEL (Total): 59

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 1,100,000
   B. EXTRAMURAL (Total): $ N. A.

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes): 13-02

The Facility is operated to supply all utilities and services required for the test-operation developmental evaluation of sea water conversion pilot plants. There are currently ten pilot plants in operation. All pilot plants are contractor operated.

A. ADDITIONAL COSATI CODES:

13-08 and 13-11

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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798 8. MAJOR EQUIPMENT:

The Test Facility consists of reinforced concrete slab foundations for pilot plants, a skimmer pond, aeration basin, impounding basin, office building, and laboratory, corrosion test building, maintenance shop, garage, utility building and fuel storage. A sea water intake system supplies 2.3 million gallons per day for operation of the pilot plants. The pilot plants consist variously of pumps, pipes, evaporators, heat exchangers, compressors, deaerators, etc.

9. COMMENT AND PUBLICATION REFERENCES:

The Saline Water Conversion Report contains additional details. It is available from the U. S. Government Printing Office.

OSW R&D Progress Report No. 450 is a report on Sea Water Desalination Analytical Procedures. It is available from GPO.

10. DATE OF REPORT: March 19, 1970

TEST FACILITY, SOUTH DAKOTA
INSTALLATION

INTERIOR (OFFICE OF SALINE WATER)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR: Mason-Rust

2. DIRECTOR: Kenneth M. Trompeter   A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Webster (Nearest City)   B. Day (County)   C. South Dakota (State)

4. P. O. ADDRESS: P.O. Box 261
   A. Webster (City)   B. S. D. (State)   C. 57274 (Zip Code)   D. 605-345-3348 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 5
   B. ALL OTHER PERSONNEL (Total): 12

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 400,000
   B. EXTRAMURAL (Total): $ N.A.

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes): 13-02

The Facility is operated to supply all utilities and services required for the test operation developmental evaluation of a brackish water conversion plant and brackish water pilot plants.

A. ADDITIONAL COSATI CODES: 13-08 & 13-11

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

800 8. MAJOR EQUIPMENT:

1 - Electrodialysis brackish water conversion plant with an output capacity of 325,000 gallons per day.

Pilot units of varying output for testing new membrane processes to convert brackish water to potable water.

Laboratory and shops.

9. COMMENT AND PUBLICATION REFERENCES:

The Saline Water Conversion Report, published annually contains additional details.

Each year a special report is prepared and issued as an OSW R&D Progress Report.

Published reports are:

Nos. 101, 132, 164, 241 and 296.

All reports are available from the US GPO.

10. DATE OF REPORT: March 19, 1970

TEST FACILITY, TEXAS	INTERIOR (OFFICE OF SALINE WATER)
INSTALLATION	AGENCY OR DEPT.

801

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: Vitro Services Div. -Vitro Corp. of America & Dow Chemical Co.

2. DIRECTOR: John R. Newton   A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Freeport (Nearest City)   B. Brazoria (County)   C. Texas (State)

4. P. O. ADDRESS: P.O. Box 2208, Text Facility

A. Freeport (City)   B. Texas (State)   C. 77541 (Zip Code)   D. 713-233-6321 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 5
B. ALL OTHER PERSONNEL (Total): 16

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,000,000
B. EXTRAMURAL (Total): $ N.A.

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes): 13-02

The Facility is operated to supply all utilities and services required for the test-operation developmental evaluation of a sea water conversion plant and a materials test center.

A. ADDITIONAL COSATI CODES:

13-08 & 13-11

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

802 8. MAJOR EQUIPMENT:

1 - Vertical-tube-evaporator, falling-film process sea water conversion plant with an output capacity of 1 million gallons per day.

1 - Materials test center with loops for testing the effect of sea water on metals.

Laboratory-chemical and metallurgical.

9. COMMENT AND PUBLICATION REFERENCES:

An annual report of the Facilities activities is published and is available from the U.S. Government Printing Office. They are published as OSW R&D Progress Reports:

Nos. 71, 100, 123, 171, 253, 440 and 479.

All reports are available from the US GPO.

10. DATE OF REPORT: March 19, 1970

ADVANCED WASTE TREATEMENT RESEARCH LABORATORY
INSTALLATION

INTERIOR (FWPCA)
AGENCY OR DEPT.

803

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Richard A. Vanderhoof
A. TECHNICAL DIRECTOR: Francis M. Middleton

3. LOCATION: A. Cincinnati (Nearest City) B. Hamilton (County) C. Ohio (State)

4. P. O. ADDRESS: Advanced Waste Treatment Research Laboratory, Robert A. Taft Research Center, 4676 Columbia Parkway
A. Cincinnati (City) B. Ohio (State) C. 45226 (Zip Code) D. 513-871-1820 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 51
B. ALL OTHER PERSONNEL (Total): 40

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,688,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Robert A. Taft Water Research Center conceives, plans, administers, and conducts a national program of research and development through intermural projects and in the field through contracts, projects and cooperative agreements to improve existing waste treatment, sludge handling and disposal. The Laboratory develops and demonstrates new practicable means of treating municipal sewage and other water-borne wastes to remove the maximum possible amounts of physical, chemical, and biological pollutants in order to restore and maintain the maximum amount of the Nation's water at a quality suitable for repeated re-use, and develops and demonstrates new practicable means for the non-pollutional disposal of waste concentrates separated during treatment.

(Civil Engineering, Water Supply Systems, Sanitary Engineering, 13-02)

A. ADDITIONAL COSATI CODES:
07-01, 07-02, 07-03, 07-04

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Special: Includes 3,600 sq. ft. experimental Biological Water Treatment Plant valued at approximately $250,000.

Laboratory has a wide range of special equipment used for biological, chemical, and physical investigations in water and waste water.

9. COMMENT AND PUBLICATION REFERENCES:

Includes only Robert A. Taft Water Research personnel and consists of Mine Drainage Pollution Control Activities and Advanced Waste Treatment Research Laboratories.

Publication Reference: Ohio Basin Region
Federal Water Pollution Control Admin.
US Department of the Interior Brochure, 1969

10. DATE OF REPORT: November 5, 1969

ANALYTICAL QUALITY CONTROL LABORATORY
INSTALLATION

INTERIOR (FWPCA)
AGENCY OR DEPT.

805

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Alphonse F. Forziati
A. TECHNICAL DIRECTOR: Dwight G. Ballinger

3. LOCATION: A. Cincinnati (Nearest City) B. Hamilton (County) C. Ohio (State)

4. P. O. ADDRESS: Analytical Quality Water Control Laboratory, Robert A. Taft Research Center, 4676 Columbia Parkway

A. Cincinnati (City) B. Ohio (State) C. 45226 (Zip Code) D. 513-871-1820 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 32
B. ALL OTHER PERSONNEL (Total): 17

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 760,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Methods development for analysis of water and development of quality control techniques. Includes the following methods:

Chemical determination
Biological treatment
Identification techniques
Development of better methods

(Civil Engineering, Water Supply Systems, Treatment, 13-02)

A. ADDITIONAL COSATI CODES:
07-01, 07-02, 07-03, 07-04, 06-06

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Emission Spectograph, Jarrel Ash, approximate value is $54,000.

This laboratory also has a wide range of special equipment used for biological, chemical, and physical investigation in water and waste water.

9. COMMENT AND PUBLICATION REFERENCES:

Ohio Basin Region, Federal Water Pollution Control Administration, U. S. Department of the Interior Brochure 1969.

Note: This laboratory is physically separated from the Robert A. Taft Water Research Center and is located at 1014 Broadway, Cincinnati, Ohio 45202. Future plans encompass physical relocation in the RATWRC complex upon the premises being vacated by National Center for Air Pollution Control Activities. AQCL reports to Director, Division of Water Quality Research.

10. DATE OF REPORT: November 6, 1969

HUDSON-DELAWARE BASINS OFFICE — INTERIOR (FWPCA)

INSTALLATION — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Kenneth H. Walker — A. TECHNICAL DIRECTOR: Richard T. Dewling

3. LOCATION: A. Edison (Nearest City) B. Middlesex (County) C. New Jersey (State)

4. P. O. ADDRESS: Hudson-Delaware Basins Office, Federal Water Pollution Control Admin.
Interior Department
A. Edison (City) B. New Jersey (State) C. 08817 (Zip Code) D. 201-548-3347 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 7
B. ALL OTHER PERSONNEL (Total): *

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 168,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research and Development Branch - 1. Develops and conducts national research and development activities for the Administration based upon specific assignments from the Assistant Commissioner for Research and Development. 2. Provides research and development units for specific assigned areas of activity. These teams are responsible for conducting literature search; developing a "state of the art" to include a definition of priorities; providing the necessary coordination with other agencies; and conducting inhouse research and development.

Oil and Hazardous Materials Research Section - Develops and conducts national research and development for the Administration with principal regard to the behavior of such materials in the water environment, the resultant hazard to water use and effective procedures to contain, clean-up, and otherwise control pollutional spills.

Biological Indicator Research Section - Develops and conducts national research and development for the Administration concerning new and improved methods of identifying and using suitable biological indicators of pollution. This project does not include viruses.

Vessel Pollution Research Section - Develops and conducts national research and development for the Administration in the area of essentially domestic pollution discharged from both small watercraft and large vessels. The principal goals involve the development of criteria for evaluating improved and new methods of retention and treatment.

Combined and Storm Sewer Wastes Research Section - Develops and conducts national research and development for the Administration for the evaluation of new and improved methods or alternatives relating to the reduction of pollution from urban runoff and combined and storm sewer discharges.
(Civil Engineering, Sewage, Water Supply Systems, 13-02)

A. ADDITIONAL COSATI CODES:
06-06, 07-01, 07-02, 07-03, 07-04.

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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808 8. MAJOR EQUIPMENT:

This laboratory has a wide range of specialized equipment used to carry out the necessary functions of all assigned R&D programs. Included are:

1) Fluorescent Microscope: used in R&D program for identification of fecal strep by fluorescent microscopy.

2) Atomic Absorption, IR, GC: used for the identification of oils including light and heavy residual fuels that might be spilled into the water environment.

3) Auto-Analyzer: used for all water quality studies to analyze samples for nutrients.

9. COMMENT AND PUBLICATION REFERENCES:

*Support staff is shared with other activities at this location.

10. DATE OF REPORT: November 1969

ROBERT S. KERR WATER RESEARCH CENTER
INSTALLATION

INTERIOR (FWPCA)
AGENCY OR DEPT

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Marvin L. Wood A. TECHNICAL DIRECTOR: Marvin L. Wood

3. LOCATION: A. Ada (Nearest City) B. Pontotoc (County) C. Oklahoma (State)

4. P. O. ADDRESS: Robert S. Kerr Water Research Center, Federal Water Pollution Control Administration, P. O. Box 1198

A. Ada (City) B. Oklahoma (State) C. 74820 (Zip Code) D. 405-332-8800 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 45
B. ALL OTHER PERSONNEL (Total): 55

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,471,744
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Center conducts three basic programs within the South Central Region, FWPCA, all relating to prevention and control of water pollution. These are as follows:

I. Treatment and Control Research - Experimental application of technology for treatment, control, or prevention of pollution from:

(1) petrochemical industry
(2) oil production
(3) petroleum refining
(4) irrigation return flows
(5) animal feed lots
(6) meat packing

II. Water Quality Control Research - Development of technology for control of pollution by means other than waste treatment (e.g., process change, dilution, dispersion, environmental treatment, etc.)

III. Ground Water Pollution Research - Research on methods for predicting the concentration and form of pollutants as they move through ground water, ultimate disposal of waste concentrates under the ground, soil treatment, soil chemistry and microbiology and ground water recharge.

(Civil Engineering, Sanitary Engineering, Water Pollution, 13-02; Chemistry, Chemical Engineering 07-01; Inorganic 07-02; Organic 07-03; Physical Chemistry 07-04)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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810 8. MAJOR EQUIPMENT: The Laboratory has a wide range of special equipment to conduct research, experiments, and studies relating to prevention and control of water pollution.

1. Jarrell-Ash Mark IV Direct Reading Emission Spectrograph - Simultaneous analysis of 15 elements in water sample
2. Perkin-Elmer 303 Atomic Absorption Spectrophotometer - Repetitive analysis of samples for single metals
3. Technicon Auto Analyzer - Automated colorimetric analysis for various routine wet chemistry determination
4. Aerograph 200 Gas Chromatograph - Analysis
5. Total Organic Carbon Instrument - This instrument is designed to measure the concentration of organics in water by converting the organic carbon to inorganic carbon which the instrument can then measure.
6. Infrared Spectrophotometer - This instrument is used to identify specific organic compounds which may be found in the pollution of water.
7. Radiation Counting Laboratory - Includes Beckman LS-150 Liquid Scintillation Spectrometer, NMC Internal Proportional Counter and various portable radiation counting instruments.

9. COMMENT AND PUBLICATION REFERENCES:

10. DATE OF REPORT: October 29, 1969

NATIONAL MARINE WATER QUALITY LABORATORY — INSTALLATION

INTERIOR (FWPCA) — AGENCY OR DEPT.

811

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Clarence M. Tarzwell
   A. TECHNICAL DIRECTOR: Clarence M. Tarzwell

3. LOCATION: A. West Kingston (Nearest City) B. Washington County (County) C. Rhode Island (State)

4. P. O. ADDRESS: P.O. Box 277, Liberty Lane at Fairgrounds Road
   Federal Water Pollution Control Administration
   A. West Kingston (City) B. R.I. (State) C. 02892 (Zip Code) D. 401-789-9738 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 41
   B. ALL OTHER PERSONNEL (Total): 15

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 799,000
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The mission of the National Marine Water Quality Laboratory is to determine the water quality requirements for the various uses of marine and estuarial waters. In carrying out this task, determinations will be made of the allowable upper and lower limits of quality for each use and the most favorable range in water quality for each specific use. Marine and estuarial waters have four main uses: Industrial, Recreational, Aesthetic and the Production of Marine Life. (13-02 Civil Engineering - Water Supply)

A. ADDITIONAL COSATI CODES:

08-01 08-08 06-20 06-13 06-06 07-01 07-02 07-03 07-04

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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812 8. MAJOR EQUIPMENT:

Analyzer, Elemental
Ultracentrifuge, Preparative
Chromatograph-Gas Detector, Ionization Dual Flame
Chromatograph, Gas
Counter, Coulter
Floating Research Lab.
Spectrodensitometer, Schoeffel Model
Spectrometer, Liquid Scintillation
Spectrophotometer, Atomic Absorption
Spectrophotomter, Automatic Recording
Spectrophotometer, Recording Multisample
Monitor, Seawater
Analyzer Amino Acid

9. COMMENT AND PUBLICATION REFERENCES:

1. The determination, Use, and Value of Water Quality Requirements. Clarence M. Tarzwell. Presented at the 29th Annual International Water Conference of the Engineers' Society of Western Pennsylvania, Chatham Center, Pittsburgh, Pennsylvania, Tuesday, Nov. 19, 1968.

2. Pesticides in the Marine Environment. Ronald Eisler. Underwater Naturalist, Vol. 5, No. 2, 1968, pp. 11-13.

3. Toxicity and Environmental Requirements of a Strain of Aphanizomenon Flosaquae (L.) Ralfs. John H. Gentile & Thomas E. Maloney. Canadian Journal of Microbiology, Vol. 15, No. 2, 1969, pp. 165-173.

10. DATE OF REPORT: November 4, 1969

NATIONAL WATER QUALITY LABORATORY — INSTALLATION

INTERIOR (FWPCA) — AGENCY OR DEPT.

813

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Donald I. Mount, Ph.D.
   A. TECHNICAL DIRECTOR: Donald I. Mount, Ph.D.

3. LOCATION: A. Duluth (Nearest City) B. St. Louis (County) C. Minnesota (State)

4. P. O. ADDRESS: National Water Quality Laboratory, 62 Congdon Boulevard
   A. Duluth (City) B. Minnesota (State) C. 55804 (Zip Code) D. 218-727-6692 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 50
   B. ALL OTHER PERSONNEL (Total): 19

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 985,296.56*
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The mission is national in scope to determine the permissible amounts of contamination that will not interfere with water uses. Its purpose is to produce objective, factual information upon which State and Federal Standards for pollution abatement can be based.

Basically the objectives are to develop permissible limits of contamination for the following uses of water:

1. Water quality requirements for municipal uses.
2. Water quality requirements for industrial uses.
3. Water quality requirements for agricultural uses.
4. Water quality requirements for recreational uses.
5. Water quality requirements for aquatic life (fishes).
6. Water quality requirements for combination of uses.
7. Water quality requirements for other assigned uses.

The research program serves as a national focal point for a portion of university research financed by FWPCA. Research grants to many different universities in many states are developed and coordinated by the laboratory staff. Research is also directed towards developing better methods of identifying the cause of fish mortalities.

(Civil Engineering, Water Supply Systems, Sanitary Engineering, 13-02; Biological Sciences, Environmental Biology, 06-06; Microbiology 06-13; Toxicology 06-20; Chemistry, Chemical Engineering 07-01; Inorganic Chemistry 07-02; Organic Chemistry 07-03; Physical Chemistry 07-04; Earth Sciences and Oceanography - Hydrology and Limnology, 08-08)

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FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8 MAJOR EQUIPMENT:

The laboratory has the most modern and complex equipment for chemical, physical and biological analyses of water; specifically, such instruments as the atomic absorption spectrometer, gas chromatograph, electron microscope and numerous other equipment not listed below.

Beckman 1R-12 (Infrared Spectrometer)
Cary Model 14 (UV-Visible Spectrometer)
Beckman DB-C (UV-Visible Spectrometer)
Beckman Atomic Absorption Spectrometer)
Hitachi Perkin-Elmer Amino Acid Analyzer
Barber-Colman Model 500 Gas Chromatograph
Packard Tri-Carb Scinitillation Counter
RCA EMU 4 Electron Microscope
Perkin-Elmer Lo-Temp Asher
Gelman Electrophoresis Apparatus
Exposure systems for making exposures of many types of aquatic animals to know concentrations of toxicants.
Physiological apparatus for measuring exposure of aquatic animals to stress.

Gilson Differential Respirometer
Fisher Tissuematon
Porter-Blum Ultra-Microtome
Mettler Ultra-Micro Balance

Special Equipment:
1. Anodic stripping voltammetry apparatus for the determination of low level metal concentrations (e.g. Cu++@ 2 ppb with the capability of distinguishing accurately between 2.0 ppb and 2.1 ppb).

9. COMMENT AND PUBLICATION REFERENCES:

* To the amount obligated in Item 6-A can be added $141,518.56 for special equipment purchased from 14x1205 funds. This money comes from a fund provided for equipping new laboratories and is not part of the annual budget.

A hand-out folder has been published titled "The Search" by the National Water Quality Laboratory, USDI, FWPCA, Duluth, Minnesota, which is descriptive of the laboratory facilities, staffing and objectives.

A new mechanical retrieval system has been established for Research and Development Project Reports. This will encompass final reports of grants, contracts and in-house projects including speeches and technical papers prepared by our in-house staff.

10. DATE OF REPORT: October, 1969

NEWTOWN FISH TOXICOLOGY LABORATORY
INSTALLATION

INTERIOR (FWPCA)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Donald I. Mount, Ph.D.
   A. TECHNICAL DIRECTOR: William A. Brungs, Ph.D.

3. LOCATION: A. Newtown (Nearest City) B. Hamilton (County) C. Ohio (State)

4. P. O. ADDRESS: 3414 Church Street, Newton Fish Toxicology Laboratory
   A. Cincinnati (City) B. Ohio (State) C. 45244 (Zip Code) D. (513) 871-1820 x476 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 9 (& 4 summer aids)
   B. ALL OTHER PERSONNEL (Total): 1

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ $177,000.00
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Research is aimed at studying long term chronic toxicity among warm water fishes and experiments are being conducted to determine methods of assessing safe concentrations of materials in natural waterways. A natural stream (Shaller Run) is being dosed with a pollutant to learn if laboratory derived results are applicable in natural situations. Specifically directed toward developing methods for estimating safe concentrations of complex industrial wastes.

An important step in the research program is to make certain that results obtained in the laboratory can be applied to actual field situations, particularly where such variations as stream flow, turbidity and land use effects can be included in the tests.

(Civil Engineering, Water Supply Systems, Sanitory Engineering, 13-02; Biological Science, Environmental Biology 06-06; Toxicology 06-20).

A. ADDITIONAL COSATI CODES: Cosati Code 13 02, 06-13, 06-06, 06-20

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

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8. MAJOR EQUIPMENT:

The building consists of approximately 6,000 square feet of wet and dry laboratory area which is divided equally between wet and dry work areas, and possesses a spring fed water supply for experimental systems.

Within the grounds area are seven hatch ponds for use in raising test fish.

The facilities has water treatment equipment to provide uniform water quality of test water. It also has five distinct water reservoirs for proper detention and aging of experimental test waters.

The laboratory has the usual range of equipment for the proper development and testing of water including the following:

2	Gas Chromatographs
1	Atomic Absorption Spectrometer
1	Polarograph
1	Low Temperature Asher

9. COMMENT AND PUBLICATION REFERENCES:

This laboratory facility is a field station supervised under the jurisdiction of the Director of NWQL.

Reporting and funding by NWQL. See Item #9 - NWQL.

10. DATE OF REPORT: October 1969

PACIFIC NORTHWEST WATER LABORATORY
INSTALLATION

INTERIOR (FWPCA)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Alfred F. Bartsch
A. TECHNICAL DIRECTOR: Dr. Alfred F. Bartsch

3. LOCATION: A. Corvallis (Nearest City) B. Benton (County) C. Oregon (State)

4. P. O. ADDRESS: Pacific Northwest Water Laboratory, FWPCA 200 S. 35th Street
A. Corvallis (City) B. Oregon (State) C. 97330 (Zip Code) D. 503-752-4281 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 51
B. ALL OTHER PERSONNEL (Total): 51

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,534,800
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Process Research and Development - Responsible primarily for programs in advanced waste treatment and disposal, water renovation and reuse;

Water Quality Research - Concerned with the accelerated aging of lakes and lake pollution, identification of pollutants causing thermal pollution, and water quality requirements for various water uses;

Applied Science and Technology - Main functions are to seek ways of preventing and controlling pollution from storm and combined sewers, and from industrial, agricultural, mining, and other sources.

(Civil Engineering, water supply system, sanitary engineering, 13-02; Biological Sciences, Environmental Biology, 06-06; Microbiology, 06-13; Toxicology 06-20; Chemistry, Chemical Engineering, 07-01; Inorganic Chemistry 07-02; Organic Chemistry 07-03; Physical Chemistry, 07-04; Earth Sciences, Hydrology and Limnology 08-08).

A. ADDITIONAL COSATI CODES:

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8. MAJOR EQUIPMENT:

Scientific equipment used in laboratories devoted to chemistry and physics, aquatic biology, microbiology and sanitary engineering, including soils testing and a small electronic laboratory. Above equipment used in the study of thermal pollution, coastal pollution, eutrophication and waste treatment.

9. COMMENT AND PUBLICATION REFERENCES:

Numerous publications available from

Publications Office
Federal Water Pollution Control Administration
Washington D. C. 20242

Others from

Pacific Northwest Water Laboratory
200 S 35th Street
Corvallis, Oregon 97330

10. DATE OF REPORT:

SOUTHEAST WATER LABORATORY — INSTALLATION

INTERIOR (FWPCA) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Dr. David W. Duttweiler — A. TECHNICAL DIRECTOR: Dr. David W. Duttweiler

3. LOCATION: A. Athens (Nearest City) B. Clarke (County) C. Georgia (State)

4. P. O. ADDRESS: Southeast Water Laboratory, FWPCA, College Station Road

A. Athens (City) B. Georgia (State) C. 30601 (Zip Code) D. 404-546-3134 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 21
   B. ALL OTHER PERSONNEL (Total): 72

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 1,529,600
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Water Contaminants Characterization Research Program develops means and special devices to permit the rapid and economical detection, characterization, evaluation and monitoring of all types of pollution sources, and develops new and improved analytical methodology for non-routine applications, primarily of a research nature to identify and characterize physical and chemical pollutants.

The Pollution Fate Research Program conducts fundamental and applied research to describe and predict the water quality at any point in our inland surface waters. Emphasis is placed on the development of predictive models which relate the concentration and form of pollutants to the size, character, composition, and location of their sources. The predictive mechanism include the physical, chemical and micro-biological reaction rates, variations caused by changing environmental conditions and related inter-actions which directly affect the ultimate fate of such pollutants. The relationships developed will be utilized in formulating ecological models.

The Industrial and Agricultural Pollution Control Research Program is concerned with the treatment and control of wastewaters from specific industrial and agricultural sources. The sources of concern are: (1) Agricultural or rural runoff; (2) Agricultural chemical manufacture; (3) Phosphate mining; (4) Citrus and poultry processes; and (5) Textile manufacture. Assessments are made of the significance of the water pollution problems associated with each source; determinations are made of the adequacy of existing technology to treat or control the pollution; and needs for research are pointed out and appropriate research, development and demonstration projects are designed, conducted or requested.

(Civil Engineering, Sewage, Water Pollution, Supply, 13-02)

A. ADDITIONAL COSATI CODES:

07-01-Chemistry, Chemistry Eng.; 07-02 - Inorganic Chemistry; 07-03 - Organic Chem.; 08-08 - Earth Sciences, Hydrology and Limnology.

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Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

820 8. MAJOR EQUIPMENT: Southeast Water Laboratory is composed of a 50,000 ft^2 main building and a 5,000 ft^2 annex, with about 27,000 ft^2 of usable laboratory space. A floating laboratory is operated in Ft. Lauderdale, Florida. Major or unusual items of scientific equipment are:

Mass spectrometer; nuclear magnetic resonance spectrometer; atomic absorption spectrometer;
Spectro radiometer;
X-ray diffractometer;
UV, IR, visible, spectrophotometers;
Ultracentrifuge;
Variety of gas chromatographs;
Controlled environment river simulator (Under construction);
Phytoplankton growth chambers;
Continuous-flow bacterial growth chambers;
Micro DO probes; boats and sampling equipment for field studies of rivers and lakes;

9. COMMENT AND PUBLICATION REFERENCES:

Major orientation of Southeast Water Laboratory research is toward the behavior of pollutants, especially pesticides, in the aquatic environments including means of detection, characterization of sources of pollutants, and control techniques. The Southeast Water Laboratory, which is described in FWPCA pamphlet WP-8, "Clean Water for the Southeast", is part of FWPCA's Southeast Region.

10. DATE OF REPORT: October 30, 1969

National Aeronautics and Space Administration

AMES RESEARCH CENTER
INSTALLATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AGENCY OR DEPT.

823

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Dr. Hans Mark
   A. TECHNICAL DIRECTOR: Dr. Hans Mark

3. LOCATION: A. Mountain View (Nearest City) B. Santa Clara (County) C. California (State)

4. P. O. ADDRESS: Ames Research Center
   A. Moffett Field (City) B. California (State) C. 94035 (Zip Code) D. 415-961-1111 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 1,090
   B. ALL OTHER PERSONNEL (Total): 1,880

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 59,900,000
   B. EXTRAMURAL (Total): $ 45,000,000

7. MAJOR FUNCTIONS AND ACTIVITIES:

The Ames Research Center has major basic and applied research responsibilities in aerodynamics, thermodynamics, materials, structures, guidance and control, space sciences, environmental biology, life detection, life synthesis, human factors, and fundamental physics and chemistry; project management of unmanned spaceflight projects (scientific probes and satellites); and the development of scientific-experiment payloads for spaceflight projects managed at Ames and elsewhere. Specific examples of the Center's activities include research in simulation techniques; gas dynamics at extreme speeds; studies of the configuration, stability, structures, and guidance and control systems of aeronautical and space vehicles; and biomedical and biophysical research.

The Center has flight project management responsibility for the Pioneer and Biosatellite projects. Pioneer provides scientific observations of phenomena in interplanetary space from an unmanned spacecraft, and the Biosatellite project explores the biological effects of the space environment on primates and other organisms. The Center also has management responsibility for the operation of large high-altitude aircraft to conduct airborne scientific experiments in astronomy.

8. MAJOR FACILITIES:

The physical plant comprises 34 major technical facilities and laboratories, including 15 major wind tunnels collectively capable of simulating the aerodynamic and thermal conditions of velocities from subsonic through Mach 50; guidance, control and motion simulators; together with laboratories and environmental simulation apparatus for physical and life sciences research in the areas of materials and structures, solar and geophysical phenomena, life synthesis, life detection, and life environmental factors. Some of the more significant facilities are listed below:

- Ballistic Range, Hypervelocity
- Ballistic Range, Pressurized
- Biosatellite Centrifuge
- Bioscience Laboratory
- Flight and Guidance Simulation Laboratory
- Flight Simulation Laboratory
- Free-Flight Facility, Hypervelocity
- Free-Flight Facility, Hypervelocity (Pilot)
- Gas Dynamics Laboratory (Including 3 wind tunnels)
- Instrument Research Laboratory
- Life Science Research Laboratory
- Physical Science Research Laboratory
- Shock Tube Laboratory, Free-Flight Facility
- Shock Tunnel, 42 inch
- Space Environment Research Laboratory
- Space Science Research Laboratory
- Space Technology Building Annex
- Structural Dynamics Laboratory
- Systems Engineering Facility
- Wind Tunnel, Helium, Mach 50
- Wind Tunnel, Helium, Hypersonic
- Wind Tunnel, Hypersonic, 3.5 foot
- Wind Tunnel, Hypersonic, 3.5 foot (Pilot)
- Wind Tunnel, Pressure, 12 foot
- Wind Tunnel, Subsonic, 7x10 foot #1
- Wind Tunnel, Subsonic, 7x10 foot #2
- Wind Tunnel, Subsonic, 40x80 foot
- Wind Tunnel, Supersonic, 1x3 foot
- Wind Tunnel, Supersonic, 6x6 foot
- Wind Tunnel, Supersonic, 8x7 foot
- Wind Tunnel, Supersonic, 9x7 foot
- Wind Tunnel, Transonic, 2x2 foot
- Wind Tunnel, Transonic, 11x11 foot
- Wind Tunnel, Transonic, 14 foot

9. COMMENT AND PUBLICATION REFERENCES:

Adventures in Research; History of Ames Research Center 1940-1965, SP 4302; Hartman, Edwin P.

Manual for Users of the Unitary Plan Wind Tunnel Facilities, 1956

NASA Facts - Ames Research Center, July 1968

NASA Technical Facilities Catalog, Vols I and II, NHB 8800.5, March 1967

NASA Research and Technology Program Digest, Flash Index, FY 1969, March 1969

Recruiting Brochure, Ames Research Center, January 1968

Research Facilities Summary Volume I - Guns and Ranges, NASA-Ames Research Center, December 1965

Research Facilities Summary Volume II - Wind Tunnels, Subsonic, Transonic, and Supersonic, NASA-Ames Research Center, December 1965.

10. DATE OF REPORT: October 1969

ANTENNA TEST RANGE
INSTALLATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Goddard Space Flight Center)

825

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☒ CONTRACTOR-OPERATED

C. CONTRACTOR: The Regents of the New Mexico State University

2. DIRECTOR: Harold R. Lawrence
A. TECHNICAL DIRECTOR: Louis Snow

3. LOCATION: A. Las Cruces (Nearest City) B. Don Ana (County) C. New Mexico (State)

4. P. O. ADDRESS: Physical Sciences Laboratory, Electro-Magnetic Section, P.O. Box 548
A. Las Cruces (City) B. New Mexico (State) C. 88001 (Zip Code) D. 505-524-2851 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 9
B. ALL OTHER PERSONNEL (Total): 10

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 125,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES:

The Antenna Test Range is operated under a facilities use contract with NASA, administered by the Goddard Space Flight Center. The principal work conducted at the Range for NASA is the measurement of radiation patterns on all types of antennas such as the Nimbus satellite antennas, pointing accuracy of the Gemini rendezvous radar, sounding rocket antennas, ground tracking and wide band antennas.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

826 8. MAJOR FACILITIES:

The Range is located on approximately six (6) square miles of Government property at Las Cruces, New Mexico. There are four (4) Ranges, which vary in size as follows: a 100 foot model range, a 150 foot, a 375 foot, and a 3,000 foot range. The standard operating frequency range is from 36Mc - 12000 Mc without any equipment modifications. The Range has the capability of conducting simultaneous power contour plots automatically on any two of the above ranges. Each of the four ranges has an equipment package which includes the following main items:

Antenna Pattern Receiver
Azmuth Positioner
Log Polar Recorder
Polar Model Range
Polar Model Range Extension
Polar Pattern Receiver
Polar Positioner
Polar Receiver Head

In addition to the above, there is an antenna assembly group that consists of a 28 foot antenna dish, five (5) 10 foot parabolic reflectors, a six (6) foot parabolic reflector, three (3) four foot parabolic reflectors, plus necessary antenna towers.

9. COMMENT AND PUBLICATION REFERENCES:

Antenna Radiation Pattern Measuring Research Instrument, 1963, H. W. Haas

10. DATE OF REPORT: November 1969

ATMOSPHERIC PROPAGATION RESEARCH FACILITY
INSTALLATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Electronics Research Center)

827

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: James C. Elms
A. TECHNICAL DIRECTOR: James C. Elms

3. LOCATION: A. Westford (Nearest City) B. Middlesex (County) C. Mass. (State)

4. P. O. ADDRESS: Electronics Research Center 575 Technology Square
A. Cambridge (City) B. Mass. (State) C. 02139 (Zip Code) D. 617-494-2000 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 2 (part time)
B. ALL OTHER PERSONNEL (Total): 0

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 119,000
B. EXTRAMURAL (Total): $ 36,000

7. MAJOR FUNCTIONS AND ACTIVITIES:

The Atmospheric Propagation Research Facility supports basic research in the area of microwave phenomena with emphasis on atmospheric propagation research. The major activity is to observe and correlate the amplitude and fine structure turbulent variations related to atmospheric attenuation, reradiation and refraction at microwave and millimeterwave frequencies. The results of this work will provide techniques and knowledge to compensate for atmospheric effects which may limit the performance of space communication systems. These system limitations are manifested in reduced data rate, limited bandwidth and informational capability.

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

8. MAJOR EQUIPMENT:

The facility comprises approximately one acre of the Massachusetts Institute of Technology's Lincoln Laboratory on which NASA's Electronics Research Center has erected three radiometric receivers for atmospheric propagation research. In addition it is planned to install a millimeter interferometer antenna system to support the Applications Technology Satellite millimeter propagation experiment.

9. COMMENT AND PUBLICATION REFERENCES:

See NASA's Electronics Research Center

10. DATE OF REPORT: October 1969

BEDFORD FLIGHT FACILITY
INSTALLATION

NATIONAL AERONAUTICS
AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Manned Spacecraft
Center)

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☒ CONTRACTOR-OPERATED
   - C. CONTRACTOR: Massachusetts Institute of Technology (Instrumentation Laboratory)
2. DIRECTOR: Dr. Charles Stack Draper A. TECHNICAL DIRECTOR: Dr. Charles Stack Draper
3. LOCATION: A. Concord (Nearest City) B. Middlesex (County) C. Massachusetts (State)
4. P. O. ADDRESS: MIT Instrumentation Laboratory, Bedford Flight Facility, Hanscom Field, Virginia Road
   A. Concord (City) B. Massachusetts (State) C. 01742 (Zip Code) D. 612-274-8250 (Telephone (Area Code & No.)
5. PERSONNEL: (As of June 1969):
   - A. R&D PROFESSIONALS (Total): 7
   - B. ALL OTHER PERSONNEL (Total): 11
6. FUNDING (Approximate FY 1969 Dollar Obligation):
   - A. INTRAMURAL (Total): $ 200,000
   - B. EXTRAMURAL (Total): $ 20,000
7. MAJOR FUNCTIONS AND ACTIVITIES:

The Massachusetts Institute of Technology's Instrumentation Laboratory in conjunction with the Bedford Flight Facility develops programs for on board spacecraft computers, conducts research and development on computer systems, and tests and evaluates hardware designed for testing computer systems.

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830 8. MAJOR EQUIPMENT:

The physical plant owned by NASA consists of a building with a total floor space of approximately 4,500 square feet. The upper floor is used for mechanical design. The first floor houses highly accurate measuring equipment such as optical comparators and bench equipment used in the inspection and evaluation of mechanical parts which are assembled into test tables for inertial guidance equipment.

9. COMMENT AND PUBLICATION REFERENCES:

10. DATE OF REPORT: October 1969

CANOGA PARK FACILITY
INSTALLATION

NATIONAL AERONAUTICS
AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Marshall Space
Flight Center)

831

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ CONTRACTOR OPERATED

C. CONTRACTOR: Rocketdyne Division, North American Rockwell Corporation

2. DIRECTOR: Everett Johnson A. TECHNICAL DIRECTOR: -

3. LOCATION: A. Canoga Park (Nearest City) B. Los Angeles (County) C. Californis (State)

4. P. O. ADDRESS: Canoga Park Facility, 6633 Canoga Avenue

A. Canoga Park (City) B. California (State) C. 91303 (Zip Code) D. 213-884-2841 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 2,510
B. ALL OTHER PERSONNEL (Total): 3,764

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 69,703,000
B. EXTRAMURAL (Total): $ -

7. MAJOR FUNCTIONS AND ACTIVITIES:

The NASA (Marshall) mission at the Canoga Park Facility is the development, manufacture, and component testing of the F-1 and J-2 rocket engines for use in the Saturn IB and Saturn V launch vehicles, and the development, component testing, and R&D hardware manufacturing for the H-1 rocket engines.

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Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

832 8. MAJOR FACILITIES:

The NASA Canoga Park Facility is in a complex composed of government-owned buildings and private buildings either owned or leased by the Rocketdyne Division of North American Rockwell Corporation. Of the total 1,685,851 square feet of building space, the U. S. Government owns 609,425 square feet, most of which is contained in Air Force Plant 56, used in engineering manufacturing and related activities. Significant government-owned facilities include:

Braze Furnace and White Room
Vibration Facilities
Rotary Dynamics Facilities
Hot Flo Facilities

9. COMMENT AND PUBLICATION REFERENCES:

Marshall Space Flight Center, Master Plan, Various Locations, Volume 4, 1968

10. DATE OF REPORT: October 1969

CHURCHILL RESEARCH RANGE
INSTALLATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Wallops Station)

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ CONTRACTOR-OPERATED

C. CONTRACTOR: Pan-American World Airways

2. DIRECTOR: Dr. J. H. Brandy
A. TECHNICAL DIRECTOR: Dr. J. H. Brandy

3. LOCATION: A. Fort Churchill (Nearest City) B. Manitoba (County) C. Canada (State)

4. P. O. ADDRESS: Churchill Research Range
A. Fort Churchill (City) B. Manitoba (State) C. Canada (Zip Code) D. 204-856-3010 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 12
B. ALL OTHER PERSONNEL (Total): 212

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 4,000,000 (See Item 9)
B. EXTRAMURAL (Total): $ -

7. MAJOR FUNCTIONS AND ACTIVITIES:

To launch scientific sounding rockets and balloons into the upper atmosphere at high latitudes (sub-arctic zone). Fort Churchill's location under the zone of maximum auroral activity and near the focal point of the earth's magnetic field makes it unique for the study of the aurora, noctilucent clouds, energetic particles and atmospheric structures. In addition, its proximity to the arctic breeding ground for Northern Hemisphere weather patterns provides an ideal site for meteorological studies.

8. MAJOR FACILITIES:

Facilities are provided at the Range to store rocket motors under controlled ambient conditions; to assemble, checkout, and launch rocket vehicles and payloads; to radar and optically track rocket flights; and to obtain payload and vehicle telemetry data. Major facilities and equipment items are listed below:

Auroral Observatory
Coordinate Converters Polar to Cartesian (MILGO)
Frequency Control and Analysis System
Ionospheric Sounding Station
Liquid Aerobee Launcher

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834 Meteorological Station using sounding rockets, Rawinsondes, and Pibal releases
Microwave Communication System (45 Channels)
Optical Tracker (MR-51)
Solid Propellant Rocket Launchers (5)
Sound Ranging System
Surveillance Radar (MPS 504)
Telemetry Station (FM/FM)
Tracking Radar (MPS 14)
Tracking Radars (FPQ 11)
Tracking System (RADINT)
X-Y Recorders (MILGO)

9. COMMENT AND PUBLICATION REFERENCES:

The Churchill Range is a Canadian range funded jointly by Canada and the United States. All real property is Canadian; about 80 percent of the personal property (instrumentation) is owned by the United States. The Range is managed by the National Research Council of Canada and contractor operated by Pan-American World Airways. The United States share of the annual funding ($2,000,000) is divided as follows: NASA, $1,500,000; Department of Defense, $500,000).

Publication: Handbook for Range Users - NRC - August 1967

10. DATE OF REPORT: October 1969

COMBINED SYSTEMS TEST STAND
INSTALLATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Lewis Research Center)

835

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☒ CONTRACTOR-OPERATED

C. CONTRACTOR: General Dynamics Corporation (Convair Division)

2. DIRECTOR: Dr. Abe Silverstein

A. TECHNICAL DIRECTOR: E. R. Jonash

3. LOCATION: A. San Diego (Nearest City) B. San Diego (County) C. California (State)

4. P. O. ADDRESS: General Dynamics/Convair, Kearny Mesa Plant, 5001 Kearny Villa Road

A. San Diego (City) B. California (State) C. 92112 (Zip Code) D. 714-277-8900 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): -

B. ALL OTHER PERSONNEL (Total): 1

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 3,200

B. EXTRAMURAL (Total): $ -

7. MAJOR FUNCTIONS AND ACTIVITIES:

The Combined Systems Test Stand utilizes launch type checkout equipment to provide an evaluation of the Atlas/Centaur and spacecraft vehicle systems during combined vehicle operation tests in a simulated space flight from pre-launch through payload separation and operation. The tests simulate actual flight conditions as closely as practicable. Results of the tests make it possible for incompatibilities to be corrected prior to delivery of the space flight vehicles to the launch site.

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Conducted By THE NATIONAL SCIENCE FOUNDATION For The
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836 8. MAJOR FACILITIES:

The Combined Systems Test Stand is located adjacent to General Dynamics/Convair Air Force Plant #71. NASA owns the Test Stand, its supporting facilities and the land consisting of approximately 3.5 acres. Approximately 70 contractor personnel are required to run the simulation tests during which NASA provides five part-time personnel for monitoring purposes.

The combined structure consists of a booster area, operations room, tower area, and spacecraft area. Testing is by electric simulation only. No propellants or cryogenics are introduced into the Test Stand. This removes any requirements for explosion proof fixtures. The Test Stand has electro-magnetic interference-free techniques incorporated into its design and construction.

The Centaur stage can be electrically mated to the Atlas booster and to a spacecraft. A Centaur/spacecraft combination can be mechanically mated and mounted vertical in an assembly tower adjacent to the horizontally positioned Atlas.

9. COMMENT AND PUBLICATION REFERENCES:

This facility has been closed for several months except for the vertical tower where activities relating to vertical center of gravity determinations and the weighing of Centaur vehicles continue. The remainder of the facility will be transferred to other interested Government agencies or disposed of by standard procedures, with a rights-to-use clause for the tower. The funding shown is for maintenance of the facility only; obligations for weighing and center of gravity measurements are charged against production contracts.

10. DATE OF REPORT: November 1969

DEEP SPACE NETWORK
INSTALLATION

NATIONAL AERONAUTICS
AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Jet Propulsion Laboratory)

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☒ CONTRACTOR OPERATED

C. CONTRACTOR: California Institute of Technology, Jet Propulsion Laboratory

2. DIRECTOR: Dr. W. H. Pickering A. TECHNICAL DIRECTOR: Dr. W. H. Pickering

3. LOCATION: A. Pasadena (Nearest City) B. Los Angeles (County) C. California (State)

4. P. O. ADDRESS: Jet Propulsion Laboratory, 4800 Oak Grove Drive
A. Pasadena (City) B. California (State) C. 91103 (Zip Code) D. 213-354-4321 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 608
B. ALL OTHER PERSONNEL (Total): 828

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 32,079,000
B. EXTRAMURAL (Total): $ 17,615,000

7. MAJOR FUNCTIONS AND ACTIVITIES:

The Deep Space Network comprises world wide facilities devoted to the functions of spacecraft tracking, control, and data acquisition. Primary support is to NASA projects involving automated spacecraft in flights beyond near-Earth orbits. Backup support is provided to the NASA Manned Spaceflight Network. Projects managed by foreign governments are supported also through cooperative agreements with NASA.

In addition to operational activities, programs of research and development are carried out to improve deep space communications techniques and to develop superior equipment and systems for mission applications. Radar observations of the planets serve as a focus for development work concerned with high-power transmitters, advanced receiving systems, and signal analysis techniques. These observations produce data of great scientific interest as well.

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Conducted By THE NATIONAL SCIENCE FOUNDATION For The
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8. MAJOR FACILITIES

The Deep Space Network is composed of three main elements:

a. The Deep Space Instrumentation Facility with principal tracking stations in California, South Africa, Spain, and Australia. The station complex at Goldstone, California, includes three 85-foot antennas and one 210-foot antenna. Overseas stations are equipped with 85-foot antennas: two at Madrid, Spain; one each at Canberra and Woomera, Australia; and one at Johannesburg, South Africa. Construction of two additional 210-foot antennas is planned, one in Spain and one in Australia.

b. The Space Flight Operations Facility at the Jet Propulsion Laboratory in Pasadena which is the network control center for all tracking and data acquisition activities of the network. This facility provides capabilities for trajectory determination, generation and execution of commands to the spacecraft, and reception and evaluation of engineering and scientific data.

c. A Ground Communications System which, as an element of the NASA Communications Network provides voice and data communications among all Deep Space Instrumentation Facility stations, the Space Flight Operations Facility, and the launch site.

Other special Deep Space Network facilities include a launch checkout station at the Kennedy Space Center and a spacecraft network compatibility test facility at the Jet Propulsion Laboratory.

9. COMMENT AND PUBLICATION REFERENCES:

Description of the Deep Space Network Operational Capabilities as of 1 January 1966, JPL Technical Memorandum 33-255.
Deep Space Instrumentation Facility: Goldstone, JPL Technical Memorandum 33-205, 1965.
The Deep Space Network, NASA Space Program Summary, Vol. II (Issues 37-47 through 37-57).

10. DATE OF REPORT: October 1969

DOWNEY INDUSTRIAL PLANT
INSTALLATION

NATIONAL AERONAUTICS
AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Manned Spacecraft
Center)

839

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ CONTRACTOR-OPERATED
C. CONTRACTOR: North American Rockwell Corporation

2. DIRECTOR: W. J. Leseman, Jr.
A. TECHNICAL DIRECTOR: W. J. Leseman, Jr.

3. LOCATION: A. Downey (Nearest City) B. Los Angeles (County) C. California (State)

4. P. O. ADDRESS: NASA Industrial Plant, 12214 Lakewood Boulevard
A. Downey (City) B. California (State) C. 90241 (Zip Code) D. 213-923-5338 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969): 2,032
A. R&D PROFESSIONALS (Total):
B. ALL OTHER PERSONNEL (Total): 4,869

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 313,260,000
B. EXTRAMURAL (Total): $ 13,100,000

7. MAJOR FUNCTIONS AND ACTIVITIES:

The primary mission of the Downey Industrial Plant is to design, develop, and manufacture specific manned spacecraft and spacecraft systems, and to provide the necessary test, integration, and checkout support for the spacecraft and associated systems used in selected NASA manned flight programs. Functions and activities include engineering development and testing, structural fabrication and assembly, systems installation and pressure tests, checkout of combined and integrated systems, and quality assurance tests.

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840 8. MAJOR FACILITIES.

The technical facilities at the Plant comprise laboratories equipped to support design, development production, test and evaluation of manned spacecraft and spacecraft systems. Testing capabilities include: thermal, metalurgical, welding, environmental, adhesive and sealants, and mechanical and structural properties. Some of the more significant facilities are:

- Cryogenics Laboratory
- Pressure Test Facility
- Pressurization Systems Development Facility
- Service Module Pressurization Test Cell
- Space Systems Development Facility
- Systems Integration and Checkout Facility

The facilities include large clean rooms (one is 45,000 square feet in size); a 98 foot high vibration and shock test tower; a man-rated 18 foot diameter vacuum chamber; laboratories for solar simulation, acoustics testing, space bearing experimentation and static testing; barricaded shelters for high pressure tests and other tests with explosive equivalents up to 50 pounds of TNT; six cryogenic test cells served by two 250 gallon liquid hydrogen dewars; and thirteen test cells rated at 10 pound TNT equivalent for pressure testing up to 20,000 psi.

9. COMMENT AND PUBLICATION REFERENCES:

10. DATE OF REPORT: October 1969

EDWARDS F-1 ENGINE TEST FACILITY
INSTALLATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Marshall Space Flight Center)

841

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ CONTRACTOR-OPERATED

C. CONTRACTOR: North American Rockwell Corporation (Rocketdyne Division)

2. DIRECTOR: Everett Johnson
A. TECHNICAL DIRECTOR: -

3. LOCATION: A. Edwards (Nearest City) B. Kern (County) C. California (State)

4. P. O. ADDRESS: Edwards F-1 Engine Test Facility, 6633 Canoga Ave.
A. Canoga Park (City) B. California (State) C. 91303 (Zip Code) D. 714-553-8222 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 2
B. ALL OTHER PERSONNEL (Total): -

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 7,879,000
B. EXTRAMURAL (Total): $ -

7. MAJOR FUNCTIONS AND ACTIVITIES:

The NASA (Marshall) mission at the Edwards F-1 Engine Test Facility is the developmental and acceptance testing of the F-1 rocket engine for the Saturn V launch vehicle.

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8. MAJOR FACILITIES:

The major testing facilities at this location consist of six F-1 engine test positions with related facilities and instrumentation, and fuel storage and transmission systems as follows:

a. Control Center
b. Electric Substation, 15,000 KVA
c. F-1 Engine Test Stands (6)
d. Fuel Storage Tanks (6) (RP-1), 60,000 gallons each
e. Pre-Test Buildings, 1-C, 1-D, 1-E (25 ton bridge crane w/pendant controls, 40 foot lift, each building; 52 foot x 115 foot high bay, 42 foot x 94 foot low bay)
f. Liquid Nitrogen Storage
g. Liquid Oxygen Storage (3 @ 1,000 tons, 1 @ 2,500 tons)
h. Water Reservoirs (3- total capacity 3,700,000 gallons)
i. Missile Electronic Building (2 - 50 ton bridge cranes w/pendant control, 40 foot lift; 20,000 square foot high bay)

9. COMMENT AND PUBLICATION REFERENCES:

Marshall Space Flight Center, Master Plan, Various Locations, Volume 4, 1968

10. DATE OF REPORT: October 1969

EDWARDS TEST STATION
INSTALLATION

NATIONAL AERONAUTICS
AND SPACE ADMINISTRATION
AGENCY OR DEPT (Jet Propulsion Laboratory)

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☒ CONTRACTOR OPERATED

C. CONTRACTOR: California Institute of Technology (Jet Propulsion Laboratory)

2. DIRECTOR: Russell C. Byers
A. TECHNICAL DIRECTOR: -

3. LOCATION. A. Edwards (Nearest City) B. Kern (County) C. California (State)

4. P. O. ADDRESS: JPL Edwards Test Station, P. O. Box 458
A. Edwards (City) B. California (State) C. 93523 (Zip Code) D. 805-277-4520 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969)
A. R&D PROFESSIONALS (Total): 18
B. ALL OTHER PERSONNEL (Total): 65

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,900,000
B. EXTRAMURAL (Total): $ -

7. MAJOR FUNCTIONS AND ACTIVITIES:

The Edwards Test Station occupies approximately 600 acres at the Edwards Air Force Base near Lancaster, California. It provides an isolated site and installations for the safe handling of liquid-and solid-propellant materials, and for the development and testing of complete rocket propulsion systems with thrust levels up to about 50,000 pounds. Propellant formulations are tested and evaluated in terms of performance, handling qualities, storability, and compatibility with other materials. Development work on propulsion systems involves components such as propellant tanks, valves, injectors, thrust chambers, nozzles, and the like, as well as complete systems.

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8. MAJOR FACILITIES.

Facilities at the Edwards Test Station provide broad capabilities for the preparation, handling, and storage of both liquid and solid propellants, and for firing tests of spacecraft propulsion systems. The principal facility categories are listed below:

a. Solid propellant processing line consisting of a group of small buildings devoted to ingredient preparation, mixing, curing, etc. in batches up to 150 gallons.

b. Test stands for both liquid and solid propellant motors. Thrust levels to 50,000 pounds can be accommodated at one stand. Various degrees of altitude and space simulation can be provided in a variety of test setups.

c. A vibration test facility is available for use in hazardous tests involving fueled propulsion systems, pressurized vessels, and pyrotechnic devices.

d. A control and recording center, providing for remote operations, is connected with the test stands by a system of walk-through tunnels containing instrumentation and control cables.

9. COMMENT AND PUBLICATION REFERENCES:

NASA Technical Facilities Catalog, Vol. 1, NHB 8800.5, March 1967.

10. DATE OF REPORT: October 1969

ELECTRONICS RESEARCH CENTER
INSTALLATION

NATIONAL AERONAUTICS
AND SPACE ADMINISTRATION
AGENCY OR DEPT

845

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: James C. Elms
   A. TECHNICAL DIRECTOR: James C. Elms

3. LOCATION A. Cambridge (Nearest City) B. Middlesex County (County) C. Mass. (State)

4. P O ADDRESS: Electronics Research Center 575 Technology Square
   A. Cambridge (City) B. Mass. (State) C. 02139 (Zip Code) D. 617-494-2000 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969)
   A. R&D PROFESSIONALS (Total): 422
   B. ALL OTHER PERSONNEL (Total): 575

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 26,822,000
   B. EXTRAMURAL (Total): $ 17,312,000

7. MAJOR FUNCTIONS AND ACTIVITIES:

The Electronics Research Center's function is to increase the nation's capability in space and aeronautics by providing the knowledge and advanced technology needed to improve performance and reliability of space and aeronautical electronic systems and components. The Center organizes, manages, and conducts a comprehensive program of basic and applied aerospace electronics research. It also provides a focal point for national aerospace electronics research, coordinating nation-wide research efforts and sponsoring electronics research conducted by industry, universities, and private institutions.

The center carries out basic and applied research in those fields of science in which there is promise of important but not fully exploited electronics applications such as solid-state physics, semiconductors and ferroelectrics, and superconductivity. In the area of electronic materials, research is conducted on inorganic and organic electronic, energy conversion and special structural materials determined to be of high potential value for NASA missions. The center identifies techniques of computer organization such as multiprocessors of unique design and capability and studies advanced software, display devices, and new machine language. In the fields of optics and microwaves, research is performed in the areas of solid state and gaseous lasers, advanced telescopes, new optical components such as modulators and mixers, microwave devices such as integrated circuits, antennas, tubes, phase shifters with control elements, and modulators of high efficiency and reliability.

In addition, the Center develops computer-oriented analysis and design techniques for evaluating proposed soluations to specific NASA problems in microcircuit technology including circuits, digital systems, and cost-effectiveness studies; and techniques for operational measurements on man and his operational environment as necessary for maintaining his well being during

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846 high-stress aerospace activity.

Technical programs in aeronautical and space activities are planned, organized and directed — including aeronautical flight control navigation and guidance research projects and aircraft flight control navigation and guidance research projects and aircraft hazard avoidance programs. This research is oriented toward all classes of civil and military aircraft as well as toward particular hazards. Mechanization studies are carried out which include cockpit simulation of displays or data presentation to establish a system configuration suitable for implementation, research tests, and evaluation purposes. Systems analysis is conducted for combined communication/navigation/air traffic control satellite systems.

8. MAJOR FACILITIES:

The physical plant comprizes three major technical laboratories as described below:

Optics Laboratory - for conducting research on optical radiation sources and components, data transmission and recovery techniques, and propagation phenomena. The laboratory includes a large vacuum tank approximately 12 feet in diameter and 37 feet high for optical mirror research.

High Rise Laboratory - a 12 story general purpose laboratory for electronic components and materials research, and for advancing microcircuit, power, and electromagnetic technology and biotechnology.

Guidance Laboratory - to accommodate research programs to develop long life precision inertial guidance sensors, electromagnetic guidance and navigation systems, and hybrid systems. The laboratory houses a Precision Inertial Test Facility for precision test and evaluation of strapdown inertial components and systems with precision air-bearing tables and support equipment. Also included is a Flight Simulation Facility with hybrid computers and cockpit displays applied to the simulation of flight controls and navigation.

9. COMMENT AND PUBLICATION REFERENCES:

NASA Technical Facilities Catalog, Volume I, NHB 8800.5, March 1967

10. DATE OF REPORT: October 1969

ELLINGTON SUPPORT FACILITIES
INSTALLATION

NATIONAL AERONAUTICS
AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Manned Spacecraft
Center)

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Dr. Robert R. Gilruth
   A. TECHNICAL DIRECTOR: Dr. Robert R. Gilruth

3. LOCATION: A. Houston (Nearest City) B. Harris (County) C. Texas (State)

4. P. O. ADDRESS: NASA Manned Spacecraft Center
   A. Houston (City) B. Texas (State) C. 77058 (Zip Code) D. 713-483-0123 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 417
   B. ALL OTHER PERSONNEL (Total): 451

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 18,000,000
   B. EXTRAMURAL (Total): $ 37,000,000

7. MAJOR FUNCTIONS AND ACTIVITIES:

The major function of the Ellington Support Facilities is to augment and support activities conducted at NASA's Manned Spacecraft Center. As such, the primary mission is the same as that of the Manned Spacecraft Center--the development of spacecraft and supporting hardware for the exploration of space by man.

NASA facilities at the Ellington Air Force Base are utilized to house administrative type functions, aircraft operations, space science activities, medical activities, and engineering and development activities, all in support of Manned Spacecraft Center missions.

Aircraft operations include the Astronaut Flight Readiness Training Program; support of R&D missions (such as manned lifting body vehicles, Apollo landing and rendezvous radar and high altitude balloon programs); support of administrative transport, maintenance test flights, ferrying and aircraft proficiency flying; and support of the Earth Resources Aircraft Program.

Space science efforts focus on experiments in flight and development of a capability for exploring earth resources from space. Medical activities are limited to environmental health and research analyses in the area of spacecraft sanitation. Other activities include the development of radar and infrared sensors for the Earth Resources Program, space qualification of small electronic equipment, and electronic instrumentation to support field tests.

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

848 8. MAJOR FACILITIES:

The major NASA facilities at the Ellington Air Force Base include hangars and shops for aircraft maintenance and inspection; over forty aircraft including jet trainers, helicopters, and lunar landing training vehicles; and other supporting facilities as follows:

Auxiliary Fabrication Laboratory
Electronic Equipment Development Laboratory
Field Test Instrumentation Laboratory
Industrial Hygiene Laboratory
Infrared Sensors Development Laboratory
Potting and Encapsulating Laboratory
Radar Development Laboratory
Water Analysis Laboratory

9. COMMENT AND PUBLICATION REFERENCES:

10. DATE OF REPORT: October 1969

FLIGHT RESEARCH CENTER
INSTALLATION

NATIONAL AERONAUTICS
AND SPACE ADMINISTRATION
AGENCY OR DEPT.

849

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Paul F. Bikle
   A. TECHNICAL DIRECTOR: Paul F. Bikle

3. LOCATION: A. Edwards (Nearest City) B. Kern (County) C. California (State)

4. P. O. ADDRESS: Flight Research Center P. O. Box 273
   A. Edwards (City) B. California (State) C. 93523 (Zip Code) D. 805-258-3311 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 206
   B. ALL OTHER PERSONNEL (Total): 549

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 22,500,000
   B. EXTRAMURAL (Total): $ 3,700,000

7. MAJOR FUNCTIONS AND ACTIVITIES:

The Flight Research Center has major research and development responsibilities in the verification of aerospace configuration characteristics for extremely high performance aircraft and spacecraft. The Center's activities include the evaluation of advanced control concepts, handling qualities, flight loads, and biomedical aspects; research on piloting problems of high performance aerospace vehicles; the development of advanced flight testing techniques; and inflight simulation.

The Center also has project management responsibility for a number of aerospace vehicle flight projects including the Joint USAF/NASA Lifting Body Flight Research Program utilizing the M2-F3, HL-10 and X-24A vehicles, and the Joint USAF/NASA YF-12 Research and Development Program utilizing two YF-12A aircraft.

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

850 8. MAJOR FACILITIES

The physical plant comprises a number of major technical facilities including (1) an office-laboratory building equipped to provide laboratory functions necessary to support Center flight programs, such as a flight simulation facility, control systems-display laboratory, biomedical programs laboratory, digital and analog computer complex, and flight control center; (2) a flight maintenance hangar equipped to maintain about twenty aerospace research vehicles and supporting aircraft; (3) a modification hangar equipped to either build or modify flight vehicles; (4) a high temperature loads calibration laboratory that provides for ground simulation of thermal and flight loads on full-size supersonic and hypersonic vehicles and vehicle components; (5) a two-station high precision radar range providing radar tracking, communications and telemetered real time data links; and (6) a runway noise acquisition system for the determination of noise produced by advanced aircraft while taking off and landing.

9. COMMENT AND PUBLICATION REFERENCES:

NASA Facts - NASA Flight Research Center, August 1967
Center Brochure - NASA Flight Research Center, 1969
NASA Technical Facilities Catalog, Vol. I, NHB 8800.5, March 1967
Research and Technology Program Digest, Flash Index, March 1969

10. DATE OF REPORT: November 1969

GODDARD INSTITUTE FOR SPACE STUDIES
INSTALLATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Goddard Space Flight Center)

851

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. John F. Clark

4. TECHNICAL DIRECTOR: Dr. Robert Jastrow

3. LOCATION A. New York City (Nearest City) B. New York (County) C. New York (State)

4. P. O. ADDRESS: Goddard Institute for Space Studies, 2880 Broadway

A. New York (City) B. New York (State) C. 10025 (Zip Code) D. 212-866-3600 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 110

B. ALL OTHER PERSONNEL (Total): 90

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 3,650,000

B. EXTRAMURAL (Total): $

7. MAJOR FUNCTIONS AND ACTIVITIES:

The Goddard Institute for Space Studies is a New York office of NASA's Goddard Space Flight Center. The Goddard Institute conducts research in astrophysics, planetary physics and atmospheric physics. The astrophysics program includes nucleosynthesis, stellar structure and evolution, galactic structure and an observational program in infrared and submillimeter astronomy. The program in planetary physics includes studies of the origin of the solar system and the evolution of planetary bodies. The program in atmospheric physics includes studies of the atmospheres of Mars and Venus based on spacecraft data; basic studies in convection and radiative transfer; investigations of the general circulation of the terrestrial atmosphere in conjunction with meteorlogical satellite data, and numerical experiments in support of global weather projects.

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

8. MAJOR FACILITIES.

The major facility at the Institute is an IBM 360/95 computer with the following main features:

10 million instructions per second
5 million bytes of directly addressable storage
8 million bytes of high speed drum storage
233 million bytes of disc storage

The Institute also has a microdensitometer and an instrumentation laboratory.

9. COMMENT AND PUBLICATION REFERENCES:

Goddard Institute for Space Studies Brochure, 1967
Goddard Institute for Space Studies Research Report, 1964-1965
Goddard Institute for Space Studies Research Report, 1965-1966
Goddard Institute for Space Studies Research Review, 1967
Goddard Institute for Space Studies Research Review, 1961-1968

10. DATE OF REPORT: November 1969

GODDARD SPACE FLIGHT CENTER
INSTALLATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AGENCY OR DEPT.

853

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Dr. John F. Clark
   A. TECHNICAL DIRECTOR: Dr. John F. Clark

3. LOCATION: A. Greenbelt (Nearest City) B. Prince Georges (County) C. Maryland (State)

4. P. O. ADDRESS: Goddard Space Flight Center, Glenn Dale Road
   A. Greenbelt (City) B. Maryland (State) C. 20771 (Zip Code) D. 201-474-9000 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 1,730
   B. ALL OTHER PERSONNEL (Total): 4,201

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 73,912,000
   B. EXTRAMURAL (Total): $ 292,069,000

7. MAJOR FUNCTIONS AND ACTIVITIES:

The Goddard Space Flight Center is responsible for the development of unmanned orbiting satellites in the interest of basic and applied research, primarily in the areas of earth resources, magnetic fields, energetic particles, ionospheres, radio physics, planetary atmospheres, meteorology, interplanetary matter, solar physics and astronomy. The Center is also responsible for the operation of an international program in sounding rocket experiments, and the maintenance and operation of two worldwide tracking networks, the Manned Space Flight Network and the Space Tracking and Data Acquisition Network (STADAN), through which the Center provides telemetry, command and control services to both manned and unmanned spacecraft exploring near-space, and supports the Apollo astronauts with a worldwide Communications Network. The Center also participates in a substantial number of scientific programs that are international in scope. It is one of the few installations in the world capable of conducting a full range space science experimentation program from theory through experimentation, design and construction, satellite fabrication and testing, tracking, data acquisition and reduction.

8. MAJOR FACILITIES.

The physical plant houses over 30 major technical facilities and laboratories which have the collective capacity to enable the design, construction and testing of a wide range of unmanned scientific satellites, as well as individual scientific experiments destined for inclusion on spacecraft. Laboratories are suitably equipped to permit intensive research to be conducted in the fields of basic and applied research in almost all areas of space physics and sciences, as well as advanced development in the field of space communication. The major facilities are listed below:

Acoustic Test Facility, High Intensity
Antenna Control Systems Facility
Antenna Test Range
Antenna Test Range (Vertical)
Attitude Control Test Facility
Attitude Control and Thruster Development Facility
Balancing Facility, Space Vehicle
Centrifuge, 20 foot
Computers, IBM 360/95 (2) and smaller
Dynamic Test Chamber, 34- x 59-foot
Environment Simulator, 2- x 2-foot (3)
Environment Simulator, 7- x 8-foot (2)
Launch Phase Simulator
Magnetic Field Component Test Facility
Measurements Laboratory (Hot Gas Thrusters)
Optical Coating Laboratory, 80-inch
Optical Facility, Low Temperature
Optical Facility, Vacuum Ultra Violet
Optical Tracking and Communications Facility
Propulsion Laboratory, Hot Gas
Propulsion Research Facility (Chemical)
Propulsion Systems Test Facility (Electric)
Radiation Environment Simulation Facility
RF Anechoic Chamber, 21- x 15- x 8-foot
Space Environment Simulator, 28- x 40-foot
Spin and Attitude Control Systems Test Facility
Spin Device Dynamic Test Facility
Sterilization Clean Room Facility
Thermal-Vacuum Chamber, 12-x 15-foot
Thermal-Vacuum Solar Simulator, 10- x 15-foot
Temperature-Humidity Chamber, 12- x 12- x 20-foot
Ultraviolet Plasma Facility
Vacuum System, Ultra-High
Vibration Test Facility (4)

9. COMMENT AND PUBLICATION REFERENCES:

Keyword Title	NASA Scientific and Technical Facility Accession Number
Antenna Test Range, Facility Description	N65-12607
Data Handling at Goddard Space Flight Center	N65-21651
Data Processing, Space Sciences	N67-18750
Encyclopedia: Satellites and Sounding Rockets of GSFC, 1959-1968	GSFC 1969
Goddard Space Flight Center	NASA Facts 0-5
Hydrogen Standard Work at GSFC	N68-25753
Optical Research Facility, GSFC	N67-35662
Orbiting Astronomical Observatory, The Mission of the	N63-15166
Range and Range Rate Tracking System, Concept, Design and Performance of the	N66-17255
Scientific Satellites, by William R. Corliss, 1967	NASA-SP-133
S-Band System, Fundamentals of Apollo Unified	N66-28029
Technical Facilities Catalog, Volume I	NHB 8800.5
Venture into Space; Early Years of GSFC	NASA-SP-4301
Users' Manuals for Individual GSFC Satellites	(Available from National Space Sciences Data Center, Code 601, GSFC)

10. DATE OF REPORT: November 1969

JET PROPULSION LABORATORY
INSTALLATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AGENCY OR DEPT

855

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☒ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR: California Institute of Technology

2. DIRECTOR: Dr. W. H. Pickering
   A. TECHNICAL DIRECTOR: Dr. W. H. Pickering

3. LOCATION: A. Pasadena (Nearest City) B. Los Angeles (County) C. California (State)

4. P. O. ADDRESS: Jet Propulsion Laboratory 4800 Oak Grove Drive
   A. Pasadena (City) B. California (State) C. 91103 (Zip Code) D. 213-354-4321 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969)
   A. R&D PROFESSIONALS (Total): 1,917
   B. ALL OTHER PERSONNEL (Total): 3,640

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 54,352,000
   B. EXTRAMURAL (Total): $ 42,367,000

7. MAJOR FUNCTIONS AND ACTIVITIES:

The Jet Propulsion Laboratory (JPL) is engaged principally in research, development, and flight project activities related to the exploration of the planets and interplanetary space with automated spacecraft. The Laboratory is project- and mission-oriented and carries out complete projects including mission studies and spacecraft design, development, testing, and flight operations. Technical direction is provided to contractor organizations participating in NASA projects.

The Laboratory conducts broad programs of research and advanced development in such fields as spacecraft power, chemical and electric propulsion, guidance and control, data handling, deep-space communications, and other areas all with the objective of achieving comprehensive and sound technologies for space exploration. There is special interest in examining advanced systems concepts which bring together and provide a focus for developments in several associated fields.

JPL maintains a strong interest and competence in the space sciences and participates actively in scientific investigations involving not only JPL-managed missions but those of other NASA laboratories and centers as well.

The Laboratory manages the world-wide facilities of the NASA Deep Space Network and provides technical direction for station operation and maintenance. In carrying out this responsibility continuing programs of research and development are conducted to assure superior techniques and facilities in support of deep space missions.

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

8. MAJOR FACILITIES

Facilities at the Jet Propulsion Laboratory include many fully-equipped specialized laboratories to support diversified research and development programs. In addition, complete facilities are available for the assembly, test, and evaluation of spacecraft hardware including subsystems and complete spacecraft. Some of the more unique or significant facilities are listed below:

- Antenna Test Range
- Astronomical Observatory (see Table Mountain Facility)
- Celestarium (Celestial Sensor Testing)
- Computer Facilities, Analog and Digital
- Dynamitron (Positive Ion Accelerator)
- Electric Propulsion Applications Laboratory
- Environmental Test Laboratory
- Hypervelocity Laboratory
- Inertial Sensor Laboratory
- 10-Kilocurie Cobalt-60 Radiation Source
- Liquid Metals Research Laboratory
- Liquid-Solium Tunnel
- Low Density Gas Dynamics Facility
- Magnetic Field Facility, High Intensity (100 Kilogauss)
- Magnetic Field Facility, Low Intensity, Shielded
- Optical Laboratory
- Photoscience Laboratory
- Plasma Flow Research Laboratory
- Polymer Chemistry Laboratory
- Power Conversion Laboratory
- Rocket Propellants and Propulsion Systems Test Facilities (See also Edwards Test Station)
- Solar Power Test Facility (See Table Mountain Facility)
- Spacecraft Assembly Facility
- Space Environment Simulators, 10-foot and 25-foot Diameters
- Space Flight Operations Facility (See Deep Space Network)
- Spectroscopy Laboratory and Long-Path Absorption Tube
- Sterilization Assembly Development Laboratory
- Wind Tunnel, Continuous Flow, 20-inch, M=1.3 to 5
- Wind Tunnel, Continuous Flow, 21-inch, M=4 to 11

9. COMMENT AND PUBLICATION REFERENCES:

JPL Technical Facilities Capability Catalog, Facility Memorandum 191-30, July 14, 1967
NASA Technical Facilities Catalog, Vol. 1, NHB 8800.5, March 1967
The Jet Propulsion Laboratory: Background, Resources, and Capabilities, March 1, 1969 (JPL Internal Report)
The 10-Foot Space Simulator at the Jet Propulsion Laboratory, JPL Technical Report 32-1231, December 15, 1967
The 25-Foot Space Simulator at the Jet Propulsion Laboratory, JPL Technical Report 32-1415, October 15, 1969
Jet Propulsion Laboratory Wind Tunnels, JPL Technical Memorandum 33-335, April 1, 1967.

10. DATE OF REPORT: October 1969

KENNEDY SPACE CENTER
INSTALLATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Dr. Kurt H. Debus
   A. TECHNICAL DIRECTOR: Dr. Kurt H. Debus

3. LOCATION: A. Titusville (Nearest City) B. Brevard (County) C. Florida (State)

4. P. O. ADDRESS: John F. Kennedy Space Center, NASA
   A. Kennedy Space Center (City) B. Florida (State) C. 32899 (Zip Code) D. 305-867-3333 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 5,479
   B. ALL OTHER PERSONNEL (Total): 16,388

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 471,400,000
   B. EXTRAMURAL (Total): $ 23,000,000

7. MAJOR FUNCTIONS AND ACTIVITIES:

The Kennedy Space Center serves as the primary NASA Center for the test, checkout and launch of space vehicles. This mission includes launch of NASA's manned and unmanned space vehicle systems at the Kennedy Space Center, the Air Force Eastern Test Range, and the Air Force Western Test Range.

The Kennedy Space Center is primarily responsible for launch vehicle checkout and preparation; spacecraft and payload checkout and preparation; launch facility design, construction, maintenance and operation including advanced planning and studies leading to development of new launch operation concepts and techniques; final integration and integrated checkout of vehicles, spacecraft and launch facilities, and the conduct of actual launch operations; operation and integration of supporting facilities and ground support equipment; and the necessary logistics support required for NASA missions.

The Kennedy Space Center is a highly flexible "space port" with the capabilities for handling a variety of launch activities and systems for present and future manned and unmanned space missions.

Small supporting off-site tracking stations used during launch periods are located near the Kennedy Space Center at Christmas, Florida and at the Merritt Island Airport.

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

8. MAJOR FACILITIES:

The physical plant contains several major technical facilities and laboratories, including five launch complexes with a total of eight launch pads; spacecraft and analog computers; complete launch control capabilities; propellants systems cleaning and repair capabilities; occupational health facilities; and flight crew training facilities. The Center's launch capabilities are summarized below, followed by a listing of some of the more significant support facilities:

Launch Complex 17 - two pads (Thor-Delta vehicle, 90' high 8' diameter, and 332,000 pounds thrust)
Launch Complex 34 - one pad (Uprated Saturn I vehicle, 223' high, 22' diameter and 1,640,000 pounds thrust)
Launch Complex 36 - two pads (Atlas Centaur vehicle, 135' high, 10' diameter, and 388,000 pounds thrust)
Launch Complex 37 - one pad (Uprated Saturn I vehicle, 223' high, 22' diameter, and 1,640,000 pounds thrust)
Launch Complex 39 - two pads (Saturn V vehicle, 365' high, 33' diameter, and 7,500,000 pounds thrust). Complex includes a Vehicle Assembly Building (525 feet high), three Launch Umbilical Towers (446 feet high) and a Mobile Service Structure (402 feet high).

Apollo Service Module Static Test Stand
Central Instrumentation Facility
Converter/Compressor Facilities (2)
Deep Space Instrumentation Building
Environmental Control Systems Test Building
Fluid Test Control Building
High Pressure Gas Storage Building
Operations and Checkout Building
Ordnance Field Test Laboratory
Ordnance Storage Facilities
Pyrotechnic Installation Facility
Radar Boresight Range
Spacecraft Systems Support Building
Spin Test Facility
Unified "S" Band Radar and Control Facility
Weather Tower

9. COMMENT AND PUBLICATION REFERENCES:

Apollo Saturn V Facilities Description, Volumes I, II, III, and IV, KSC K-V-012, 1967
KSC Selective Bibliography, 1949-1968 GP-394, July 1968
KSC Fact Book, J. F. Kennedy Space Center - Americas Spaceport, March 1969
NASA Facts, J. F. Kennedy Space Center, December 1967
Support Services Handbook, KHB 8610.1, KSC-K-AM-09, 1967
NASA Technical Facilities Catalog, NHB 8800.5, Volumes I and II, March 1967
KSC Industrial Area and Launch Support System, May 1968
Identification of Buildings and Facilities at KSC, June 1969

10. DATE OF REPORT: November 1969

LANGLEY RESEARCH CENTER
INSTALLATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: Edgar M. Cortright   A. TECHNICAL DIRECTOR: Edgar M. Cortright

3. LOCATION: A. Hampton (Nearest City)   B. --- (County)   C. Virginia (State)

4. P. O. ADDRESS: Langley Research Center
   A. Hampton (City)   B. Virginia (State)   C. 23365 (Zip Code)   D. 703-827-1110 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 1,546
   B. ALL OTHER PERSONNEL (Total): 3,194

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 105,691,000
   B. EXTRAMURAL (Total): $ 37,633,000

7. MAJOR FUNCTIONS AND ACTIVITIES:

The research programs of the Langley Center are directed to the exposure and mastery of critical problems that will confront future progress in flight; the identification of new opportunities for important progress in flight; the provision of advanced concepts and associated design, construction, and operations technology for progressive flight endeavors; and the management and support of major national flight projects.

Langley aeronautical research programs are directed to the advancement of configuration performance from the V/STOL to the hypersonic speed regimes; the efficient configuration integration of propulsion systems, and the alleviation of noise; the assurance of adequate stability and control; the definition of critical structural loads and dynamic effects; the optimization of vehicle structures and materials; the maximization of the compatibility of systems and vehicles with man and the missions; the improvement of air traffic control and all-weather operational capabilities; the enhancement of flight safety; and the guidance, evaluation, and technical support of major national aeronautical developments.

Langley space research programs focus broadly on the investigation of atmosphere-entry heating and heat shielding; the prediction of the structural dynamic characteristics of complex space vehicles; the development of practicable concepts for controlled atmosphere-entry and landing spacecraft, refurbishable launch systems and orbital logistics vehicles, manned orbital research and operational spacecraft, and advanced space exploration systems, the definition and alleviation of environmental hazards to flight; the evaluation and enhancement of the ability of man to exist and work in the space domain; the generation of rational technology for advanced space systems, components, and materials; and the guidance, evaluation, and technical support of important national space projects.

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

860 The Langley Center is also responsible for management of the Scout launch vehicle, the Viking Mars landing program, and numerous other smaller space vehicle and satellite projects.

8. MAJOR FACILITIES

Experimental research capabilities are provided by a unique array of wind-tunnel and jet facilities for aerodynamic, aeroelastic, thermodynamic, and fluid physics investigations; environmental test facilities for the evaluation of the effects of such factors as loads, vibration, noise, heat, vacuum, atmospheric constituents, micrometeoroids, and radiation; flight simulators for controlled studies of advanced man-machine-mission operations; specialized laboratories for the development of the technology of advanced life support hardware, environmental control, guidance and control systems, propulsion and power conversion devices, aerospace structures and materials, instrumentation, data systems, and communication elements; and experimental aircraft. Some major laboratory facilities are listed below:

Antenna Test Facility, Vehicle
Control Moment Gyro Research Apparatus
Dynamics Research Laboratory
Electronic Instrument Laboratory
Entry Structures Test Facilities
Fatigue Research Laboratory
Flight Control Research Facility
Flight Mission Simulators
Free-Body Dynamics Facility
Hot Gas Radiation Research Facility
Impact and Projectile Range
Impacting Structures Facility
Instrument Research Laboratory
Landing Loads Track
Life Support Technology Laboratory
Lunar Landing Research Facility
Maneuvering Simulator, Differential
Materials Radiation Laboratory
Micrometeoroid Impact Simulator
Noise Research Facilities
Plasma Research Facilities
Rendezvous Docking Simulator
Rocket and Pyrotechnic Research Facilities
Rocket Combustion Research Laboratory
Space Vacuum Facility, 60 foot
Space Vacuum Facility, 41 foot
Space Vacuum Facility, 8 x 12 foot
Structures Research Laboratory
Wind Tunnel, Hypersonic (20 x 20 inch, 21 inch, 31 x 31 inch, 37 inch, 4 foot, 60 inch)
Wind Tunnel, Hypersonic Helium, 22.5 inch
Wind Tunnel, Hypersonic Nitrogen, 19 inch
Wind Tunnel, Hypersonic Thermal (20 inch, 8 foot)
Wind Tunnel, Subsonic, 30 x 60 foot
Wind Tunnel, Subsonic Spin, 20 foot
Wind Tunnel, Subsonic/Transonic, 7 x 10 foot
Wind Tunnel, Subsonic V/STOL, 14.5 x 22 foot
Wind Tunnel, Supersonic, 4 x 4 foot
Wind Tunnel, Supersonic Pressure, 4 x 4 foot
Wind Tunnel, Supersonic Thermal, 9 x 6 foot
Wind Tunnel, Transonic, 16 foot
Wind Tunnel, Transonic Pressure, 8 foot

9. COMMENT AND PUBLICATION REFERENCES:

Research In Aeronautics and Space, Langley Research Center, March 1969
NASA Research and Technology Program Digest Flash Index FY 69, March 1969
NASA Technical Facilities Catalog, Vols. I and II, NHB 8800.5, March 1967
Scout User's Manual, Vols. 1 to 5, April 1969
Manual for Users of the Unitary Plan Wind Tunnel Facilities, 1965
NASA Facts - Langley Research Center, July 1968

10. DATE OF REPORT: October 1969

LEWIS RESEARCH CENTER
INSTALLATION

NATIONAL AERONAUTICS
AND SPACE ADMINISTRATION
AGENCY OR DEPT.

861

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Abe Silverstein
A. TECHNICAL DIRECTOR: Dr. Abe Silverstein

3. LOCATION: A. Cleveland (Nearest City) B. Cuyahoga (County) C. Ohio (State)

4. P. O. ADDRESS: Lewis Research Center 21000 Brookpark Road
A. Cleveland (City) B. Ohio (State) C. 44135 (Zip Code) D. 216-433-4000 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 1,621
B. ALL OTHER PERSONNEL (Total): 2,363

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 80,711,000
B. EXTRAMURAL (Total): $ 79,728,000

7. MAJOR FUNCTIONS AND ACTIVITIES:

The Lewis Research Center's principal mission is research and development in the areas of aircraft and spacecraft propulsion, and power generation systems for spacecraft. The Center's emphasis is predominantly research; however, the entire spectrum of activities is undertaken from basic research to applied research and development.

The Centaur, Atlas, Titan and Agena launch vehicle programs are under the Center's supervision. The SNAP-8 nuclear powered electric generating system and SERT (Space Electric Rocket Test) contracts are directed, and there is also considerable supporting in-house research effort on these projects. Projects in their early phases include the development of a quiet engine (turbo-fan jet) and improved hydrogen-oxygen burning rocket engines.

A large part of the research effort at Lewis is aimed directly at solving the problems that limit the development of engines for supersonic flight. Research efforts are directed to compressor blades to increase pressure ratio per stage, cooled turbine blades, high speed bearings, air inlets, exhaust nozzles, combustor configurations, high energy fuels, and fuel tank fire hazard evaluations. A large addition to the Propulsion Systems Laboratory is being built to test full scale engines for supersonic airplanes. The problems of the supersonic combustion ramjet engine for hypersonic flight speeds up to Mach 7 are being studied in existing facilities. The effects of cross flow in high pressure ratio lift fans for V/STOL aircraft are being investigated. Relatively small scale chemical rockets are used to study the problems of combustion instability, fuel-oxidant mixing, regenerative cooling of nozzles, ablative nozzles, and nozzle insulating coatings. The zero gravity effects of in-orbit propellant transfer, propellant re-orientation and slosh dynamics, electric rockets for deep space propulsion and devices for power generation in space are being studied. The solar cell which converts sunlight directly into electricity, batteries and fuel cells which convert stored chemicals into electricity, and a turbine driven generator system utilizing

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liquid metal vapor (Rankine cycle) or heated gas (Brayton cycle), are all under intensive research.

8. MAJOR FACILITIES.

The Lewis Research Center occupies two sites in north central Ohio. The primary site adjacent to the Cleveland Hopkins Airport and a subsidiary site is located south of Sandusky, Ohio about 50 miles west of Cleveland (see NASA's Plum Brook Station). Some major laboratory facilities at the Cleveland site are listed below:

- Basic Materials Laboratory
- Chemistry Laboratory
- Electric Propulsion Laboratory
- Engine Components Research Laboratory
- Energy Conversion Laboratory
- Engine Research Facility (64 test cells)
- Flight Research Facility
- Fluid Mechanics Laboratory
- Fracture Mechanics Laboratory
- High Energy Fuels Laboratory
- High Load Tensile Testing Facility
- Icing Research Tunnel
- Instrument Research Laboratory
- Liquid Metals Corrosion Laboratory
- Materials Processing Laboratory
- Materials & Stresses Laboratory
- Propulsion Component Evaluation Facility
- Propulsion Systems Laboratory Altitude Chambers
- Rocket Combustion Laboratory
- Rocket Engine Test Facility
- Rocket Laboratories
- Solar Power Laboratory
- Space Power Chambers
- Space Power Research Laboratory
- Special Projects Laboratory
- Structural Dynamics Laboratory
- Wind Tunnel, Supersonic, 8 x 6 foot
- Wind Tunnel, Supersonic, 10 x 10 foot
- Zero Gravity Drop Tower
- Zero Gravity Facility (10 seconds duration)

9. COMMENT AND PUBLICATION REFERENCES:

NASA Technical Facilities Catalog, Vol. 1, NHB 8800.5, March 1967
Space Environment Facility for Electric Propulsion Systems Research, NASA Technical Note TN D-2774, May 1965
NASA Technical Facilities Catalog, Vol. II; NHB 8800.5, March 1967
Manual for Users of the Unitary Plan Wind Tunnel Facilities, 1956

10. DATE OF REPORT: October 1969

MANNED SPACECRAFT CENTER
INSTALLATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AGENCY OR DEPT

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Dr. Robert R. Gilruth
   A. TECHNICAL DIRECTOR: Dr. Robert R. Gilruth

3. LOCATION: A. Houston (Nearest City) B. Harris (County) C. Texas (State)

4. P. O. ADDRESS: NASA Manned Spacecraft Center
   A. Houston (City) B. Texas (State) C. 77058 (Zip Code) D. 713-483-0123 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 6,076
   B. ALL OTHER PERSONNEL (Total): 6,843

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 274,350,000
   B. EXTRAMURAL (Total): $ 589,549,000

7. MAJOR FUNCTIONS AND ACTIVITIES:

The primary mission of the Manned Spacecraft Center is the development of spacecraft and supporting hardware for the exploration of space by man. The Center is now carrying out such major exploration and research projects as the Apollo Program and the Apollo Applications Program. Having successfully accomplished a lunar landing, the Apollo Program is continuing with a series of manned lunar exploration missions. A series of flight missions using Apollo and Gemini developed hardware to accomplish the fuller development of manned flight capabilities in terms of long-duration flights and extended operations in space is being planned under the Apollo Applications Program. The Center is also responsible for the design and development of advanced spacecrafts. Currently the Center is participating in study programs relating to advanced manned missions.

The Center mission also involves an engineering, development, and operational capability to generate the knowledge required to advance technology related to manned spacecraft and space equipment. Engineering and development efforts are also concerned with the conception and implementation of programs of applied research and development in the areas of celestial mechanics, astrophysics, space phenomena, and life support systems.

Space science efforts focus on experiments in flight, lunar exploration, research on returned lunar materials, space environment studies, and development of a capability for exploring earth resources from space.

The medical capabilities are directed toward experiments in flight, flight crew monitoring, and the development of physiological requirements for spacecraft systems.

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Conducted By THE NATIONAL SCIENCE FOUNDATION For The FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

8. MAJOR FACILITIES:

The technical facilities comprise a wide variety of laboratories fully equipped to support design, development, test, and evaluation of manned spacecraft and spacecraft systems. Some of the more significant facilities are listed below:

Accelerator Facility
Acoustic Test Facility
Anechoic Chamber
Antenna Test Range
Apollo Docking Test Facility
Communications Laboratory
Electronic System Compatibility Laboratory
Environmental Test Chambers (8', 11' and 20')
Environmental Test Chambers (65'x 120' and 43'x 35')
Environmental Test Facility (Smaller Chambers)
Flight Acceleration Facility (Centrifuge - Manrated)
Flight Simulation and Training Facilities
Fluid Systems Test Facility
Gas Analysis Laboratory
Geology, Geophysics, and Geochemistry Laboratory
Guidance and Control Laboratory
Impact Test Facility - Water/Land Landing Simulator
Inertial and Optical Laboratory
Instrument and Electronic Systems Laboratory
Life Science Laboratory Complex
Low Level Radiation Counting Laboratory
Lunar Receiving Laboratory
Mechanical Systems Laboratory
Meteoroid Simulation Laboratory
Optical Frequency Laboratory and Range
Photographic Technology Laboratory
Planetary Atmospheres Laboratory
Power Systems Test Facility, Spacecraft
Propulsion Test Facility
Pyrotechnics Test Facility
Radar Boresight Range
Radiation Instruments Laboratory
Reentry Materials and Structural Evaluation Laboratory
Solar Radio Frequency Laboratory
Spacecraft Materials Laboratory
Structures Laboratory
Vibration Test Laboratory
Water Test Chamber Facility

9. COMMENT AND PUBLICATION REFERENCES:

NASA Technical Facilities Catalog, Volume II, NHB 8800.5, March 1967
Major Test Facilities of the Engineering and Development Directorate, April 1966
Tour of the Space Environment Simulation Laboratory, January 1966
Operational Support of Laboratories and Test Facilities at the Manned Spacecraft Center, March 1967
Lunar Receiving Laboratory Facility Description, September 1968
Space Environment Simulation Laboratory Test Facilities, February 1966

10. DATE OF REPORT: September 1969

MANNED SPACE FLIGHT NETWORK
INSTALLATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Goddard Space Flight Center)

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ CONTRACTOR-OPERATED
C. CONTRACTOR: Bendix Field Engineering Corporation

2. DIRECTOR: Dr. John F. Clark
A. TECHNICAL DIRECTOR: Ozro M. Covington

3. LOCATION: A. Greenbelt (Nearest City) B. Prince Georges (County) C. Maryland (State)

4. P. O. ADDRESS: Goddard Space Flight Center, Glenn Dale Road
A. Greenbelt (City) B. Maryland (State) C. 20771 (Zip Code) D. 301-474-9000 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 195
B. ALL OTHER PERSONNEL (Total): 2,372

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 88,340,000
B. EXTRAMURAL (Total): $ 23,717,000

7. MAJOR FUNCTIONS AND ACTIVITIES:

The Manned Space Flight Network operates and maintains a global tracking and data acquisition system in support of NASA's manned space flight programs. The Goddard Space Flight Center provides administrative and technical control over facility operation and maintenance, conducts studies, and coordinates equipment engineering, testing and calibration to assure adequate network performance prior to each mission. The Goddard Space Flight Center also operates a Network Test and Training Facility which conducts programs designed to train network personnel on unique network related instrumentation and equipment.

8. MAJOR FACILITIES.

The Manned Space Flight Network is composed of stations located at Antigua, Ascension, Bermuda, and Canary Islands; Canberra, Australia; Carnarvon, Australia; Corpus Christi, Texas; Guam; Guaymas, Mexico; Goldstone, California; Kauai, Hawaii; Madrid, Spain; Merritt Island, Florida; a ship, the USS Vanguard; a transportable station; and four Apollo Range Instrumentation Aircraft. The Network Test and Training Facility is located at the Goddard Space Flight Center. The function of each station is to provide:

Spacecraft position and velocity data
Telemetry data from spacecraft systems
Biomedical data from astronauts
Digital commands to a spacecraft
Voice communications with astronauts
Television from spacecraft

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866 Each station is operational in nature, rather than being intended for basic research and development work. The principal operational equipment unit is the Apollo Unified S-Band System which provides up-link and down-link coherent carriers. The up-link is in the 2090-2120 Mc band and is phase-modulated with pseudo-random noise range code, digital command code and voice. The down-link is in the 2270-2300 Mc band and is either phase or frequency modulated with ranging, telemetry, biomedical, television, and voice sub-carriers. Other major systems at each station are as follows:

642B Digital Computer System
FPQ-16 Radar System
FPS-16 Radar System
Pulse Code Modulated Telemetry Decoding System
UHF Command System
VHF Receiver System
Various voice and teletype communication equipment

In addition, the Goddard Center operates and maintains two Lockheed Constellation aircraft which contain equipment that simulates the tracking, telemetry and command equipment on the Apollo spacecraft.

9. COMMENT AND PUBLICATION REFERENCES:

Network Operations Directive for NASA's Space Flight Operations
Manned Space Flight Network Apollo Ground Systems, September 1968
Manned Space Flight Network Index of Instruction Manuals, December 1969
Manned Space Flight Network Equipment Allocations Handbook, April 1969
Fundamentals of the Apollo Unified S-Band System, April 1966

10. DATE OF REPORT: November 1969

MARSHALL SPACE FLIGHT CENTER
INSTALLATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Wernher von Braun
A. TECHNICAL DIRECTOR: Dr. Wernher von Braun

3. LOCATION: A. Huntsville (Nearest City) B. Madison (County) C. Alabama (State)

4. P. O. ADDRESS: George C. Marshall Space Flight Center
A. Huntsville (City) B. Alabama (State) C. 35812 (Zip Code) D. 205-453-1910 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 3,825
B. ALL OTHER PERSONNEL (Total): 5,739

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 417,869,000
B. EXTRAMURAL (Total): $ 380,405,000

7. MAJOR FUNCTIONS AND ACTIVITIES:

The primary mission of the Marshall Space Flight Center is to develop large launch vehicle and space transporation systems, and to develop and integrate scientific payloads to meet NASA's space program requirements. The Center also performs advanced studies for future space exploration; conducts research in the space sciences; maintains an in-depth, multidisciplinary science and engineering capability, including systems engineering and integration, for support and evaluation of program efforts; provides a NASA in-house capability for prototype development, engineering and related technical disciplines.

8. MAJOR FACILITIES:

The Marshall Center's physical plant includes a full complement of technical facilities and laboratories comprising a national research and development capability in such disciplines as: aerodynamics; astrodynamics; flight mechanics; guidance and control theory; space vehicle and spacecraft design; propulsion and thermal engineering; structural analysis; materials research and engineering; electrical networks; power sources; nuclear and plasma physics; celestial mechanics; infrared, ultraviolet and X-ray astronomy; fabrication and assembly processes; automated checkout; quality and reliability assurance; computation technology; and systems, subsystems and components testing. The Huntsville location has deepwater access via the Tennessee, Ohio, and Mississippi Rivers, and the Center has logistics systems capable of transporting large rocket stages and payloads over long distances. Some of the more significant facilities are listed below:

Acoustic Test Facility
Altitude Test Cell
Applied Research Laboratory
Cold Calibration Test Stand

Neutral Buoyancy Simulation Facility
Physical Laboratory
Plasma Physics Laboratory
Pneumatic and Cryogenic Test Facility

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Composite Structures Fabrication Facility
868 Computation Laboratory
Dimensional Laboratory
Dynamic Test Stand (S-V)
Electrical/Electronics Laboratory (Quality Assurance)
Electrical Systems Integration Laboratory
Electro-Optics Laboratory
Engine Test Stand (F-1)
Environmental Test Laboratory (Quality Assurance)
Far-field Noise Propagation and Measurement System
Field Measurement Physics Laboratory
Flight Dynamics Simulation Laboratory
Geophysics and X-Ray Physics Laboratory
Guidance and Control Systems and Components Development Laboratory
Heat Transfer Test Facility
High Bay Fabrication and Assembly Facility
High Reynolds Number Facility
Hydraulics Research Facility
Hypersonic Shock Tunnel (Standby)
Hypervelocity Laboratory
Impulse Base Flow Facility
Inertial Sensor and Stabilizer Development Laboratory
Infra Red Heat Simulation Facility
Instrumentation and Communications Development Laboratory
Instrument Laboratory
Launch Simulation Facility (Saturn IB)
Launch Simulation Facility (Saturn V)
Load Test Facility
Low Gravity Test Facility
Machine Shop Engineering Facility
Manufacturing Methods Development Facility
Manufacturing Techniques Development Facility (Electronics)
Materials Laboratory
Metal Forming and Fabrication Facility
Power Plant Test Stand (M-1)
Prototype Development and Supporting Fabrication Laboratory
Radiation Physics Laboratory
Radiative and Conductive Physics Laboratory
Reaction Kinetics Laboratory
Rocket Acoustic Effects Test Stand
Rocket Combustion and Component Test Stand
Rocket Components Explosion Proof Test Cells
Rocket Components Flow and Pressure Test Facility
Rocket Components Test Stand, Cold Flow (Hydrogen, LOX)
Rocket Components Test Stand (RP1-LOX)
Rocket Model and Component Test Stands (Hot Firing)
Rocket Systems Altitude Facility
Shock and Acceleration Test Facility
Sound Suppressor Test Stand (Deactivated)
Space Simulation Facility
Static Test Stand (S-IB)
Static Test Stand (S-IC)
Storable Propellant Test Facility
Structural Static Test Facility
Surface Physics Laboratory
Surface Treatment Facility
Test Stand (S-IVB)
Test Stand - Redstone - (Deactivated)
Thermal Acoustic Jet Facility
Thermal Space Environment Physics Laboratory
Tube Cleaning Facility
Turbopump Facility (F-1)
Vacuum Technology Laboratory
Valve Clinic
Valve Laboratory
Vibration Test Facility
Welding Development Facility
Wind Tunnel, Long Duration, Aerodynamic

9. COMMENT AND PUBLICATION REFERENCES:

NASA Technical Facilities Catalog, Volume II, NHB 8800.5, March 1967
Marshall Space Flight Center Organization Manual

10. DATE OF REPORT: October 1969

MICHOUD ASSEMBLY FACILITY
INSTALLATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Marshall Space Flight Center)

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☒ CONTRACTOR-OPERATED
   C. CONTRACTOR: The Boeing Company and Chrysler Corporation (Space Division)

2. DIRECTOR: James L. Stamy A. TECHNICAL DIRECTOR: -

3. LOCATION: A. New Orleans (Nearest City) B. Orleans (County) C. Louisiana (State)

4. P. O. ADDRESS: Michoud Assembly Facility, P. O. Box 29300
   A. New Orleans (City) B. Louisiana (State) C. 70129 (Zip Code) D. 504-255-2601 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 1,878
   B. ALL OTHER PERSONNEL (Total): 2,818

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 122,757,000
   B. EXTRAMURAL (Total): $ -

7. MAJOR FUNCTIONS AND ACTIVITIES:

The Michoud Assembly Facility's major function is that of manufacturing the first stage boosters of the Saturn Launch Vehicles. Portions of the engineering design, systems engineering and the manufacture, fabrication, assembly, checkout and related work in NASA's Saturn Program are performed at this facility. Manufacturing activities include electrical/electronic fabrication, major subassembly areas, vertical assembly and fabrication of liquid oxygen and fuel tanks, chemical cleaning and tube cleaning. Extensive testing is performed in engineering test laboratories, structural test laboratories, environmental laboratories, fluid flow laboratories, gas flow laboratories, electrical/electronic laboratories, and two functional checkout facilities.

8. MAJOR FACILITIES:

The main manufacturing building, 43 acres of floor space with a clear ceiling height of 40 feet, is divided into two areas: one for the S-IC booster production and storage; and the other for the S-IB booster production, checkout, and storage. Additionally, the physical plant includes separate buildings for the S-IC functional checkout and vertical assembly. Some of the more significant facilities are listed below:

Certification and Calibration Laboratory
Clean Rooms
Climatic Laboratory
Cryogenic Laboratory
Data Acquisition and Reduction Station
Dynamic Test Laboratory
Electrical/Electronic Laboratory
Environmental Test Laboratory
Fluid Flow Test Laboratory
Fuel Laboratory
Gas Flow Test Laboratory
High Pressure Test Facility
Measurement Control Laboratory
Metrology Laboratory
Non-Destructive Test Laboratory
Pneumatic Laboratory
Radiographic Inspection Facility
RCA 110 A Computers
Structural Laboratory
Tank Hydrostatic Test Facility
Vibration Testing Laboratory
X-Ray Facilities

9. COMMENT AND PUBLICATION REFERENCES:

NASA Technical Facilities Catalog, Volume II, NHB 8800.5, March 1967
Michoud Assembly Facility, Administrative and Manufacturing Capabilities, July 1969

10. DATE OF REPORT: October 1969

MISSISSIPPI TEST FACILITY
INSTALLATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Marshall Space Flight Center)

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ CONTRACTOR-OPERATED

C. CONTRACTOR: General Electric Company, Boeing Company, and North American Rockwell Corporation

2. DIRECTOR: Jackson M. Balch
A. TECHNICAL DIRECTOR: Henry F. Auter

3. LOCATION: A. Bay St. Louis (Nearest City) B. Hancock (County) C. Mississippi (State)

4. P. O. ADDRESS: Mississippi Test Facility, Bay St. Louis
A. Bay St. Louis (City) B. Mississippi (State) C. 39520 (Zip Code) D. 601-688-2121 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 1,056
B. ALL OTHER PERSONNEL (Total): 1,585

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 46,347,000
B. EXTRAMURAL (Total): $ -

7. MAJOR FUNCTIONS AND ACTIVITIES:

The Mississippi Test Facility has the basic responsibility to static test (captive fire) the first 2 stages (S-IC and S-II) of the Saturn V launch vehicle. This includes pre-firing checkout, instrumentation, full duration static firing, post-firing checkout, data acquisition, data processing, and performance evaluation. Limited research is conducted in food science and rocket engine combustion.

8. MAJOR FACILITIES:

The physical plant includes three test stands (two singles for the S-II vehicle and one dual for the S-IC vehicle) and five other major technical facilities as follows:

Test Stands:

a. The A-1 and A-2 test stands are single position stands for supporting, testing, and servicing the S-II stages (33' diameter by 81.6' long and 1 million pounds thrust; stands can be modified for stages up to 97.1' long and in excess of 2 million pounds thrust).

b. The B-1/B-2 test stand is a dual position stand for supporting, testing, and servicing the S-IC stage (33' diameter by 138' long and 7 1/2 million pounds thrust; stands can be modified for stages up to 179.5' long and 10 million pounds thrust). Both the S-II and S-IC complexes are complete with control centers with operational recorders,

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digital display equipment, and the necessary supporting systems for utilities, propellants, and pressurants.

Acoustics Laboratory:

Capabilities for far-field and near-field and special purpose acoustics data collection; calibration, maintenance, and repair of acoustic devices.

Electronics, Instrumentation and Materials Laboratory:

Capabilities for material analysis; measurement standards; pressure and strain calibration; temperature, vibration, and flow calibration; photographic services; and technical services.

Component Service Facility:

This facility provides capability for the cryogenic calibration and testing of components and the capability to disassemble, repair, assemble, and checkout large rocket engine assemblies and components.

Data Acquisition Facility:

Acquires and records data signals transmitted via land lines from test articles and the facilities necessary to support tests and checkouts.

Data Handling Center:

Provides on-site data reduction capability (analog and digital) for the Data Acquisition Facility and all other test elements at the center. Provides facilities and equipment for receiving, recording, reducing, processing, and presenting digital and analog data from either telemetry or hardline sources in the support of test operations. A hi-volume remote computer terminal provides direct contact with NASA's Slidell Computer Facility

9. COMMENT AND PUBLICATION REFERENCES:

NASA Technical Facilities Catalog, Volume II, NHB 8800.5, March 1967

10. DATE OF REPORT: October 1969

NASA COMMUNICATIONS NETWORK
INSTALLATION

NATIONAL AERONAUTICS
AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Goddard Space Flight Center)

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☒ CONTRACTOR-OPERATED
   - C. CONTRACTOR: Bendix Field Engineering Corporation

2. DIRECTOR: Dr. John F. Clark
   A. TECHNICAL DIRECTOR: Ozro M. Covington

3. LOCATION: A. Greenbelt (Nearest City) B. Prince Georges (County) C. Maryland (State)

4. P. O. ADDRESS: Goddard Space Flight Center, Glenn Dale Road
   A. Greenbelt (City) B. Maryland (State) C. 20771 (Zip Code) D. 301-474-9000 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 78
   B. ALL OTHER PERSONNEL (Total): 356

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 42,500,000
   B. EXTRAMURAL (Total): $ -

7. MAJOR FUNCTIONS AND ACTIVITIES:

The NASA Communications Network is the global network of leased lines operated by NASA to provide long line communications for the support of all NASA projects. They interconnect such facilities as NASA's foreign and domestic tracking stations, telemetry, and command control sites; launch areas; test sites; and mission control centers. Through the use of switching centers, the system maintains reliability through the ability for routing over established diverse routes. The network is an operating component of the National Communications System and is available for Government support on a priority basis during a National emergency.

The system is controlled at the main switch facilities at the Goddard Space Flight Center. Secondary switches are located at London, Canberra, Madrid, Guam, and Honolulu. Terminal equipment for voice and data service is located at each NASA tracking station and at all NASA field centers.

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8. MAJOR EQUIPMENT:

In addition to the standard interface equipment provided at all NASA field centers and tracking stations, the following special switching equipment has been installed in the locations shown:

	Electronic Data Switch Univac 494	Electronic Data Switch Univac 418	Voice Switch Bell System 304 Conference Switch System
Canberra, Australia		X	X
Goddard Space Flight Center	X		X
Guam			X
Honolulu, Hawaii			X
London, England			X
Madrid, Spain		X	X

9. COMMENT AND PUBLICATION REFERENCES:

Data System Development Plan, NASCOM Network, System Description and Capabilities, September 1969

10. DATE OF REPORT: November 1969

NUCLEAR ROCKET DEVELOPMENT STATION
INSTALLATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: John P. Jewett
A. TECHNICAL DIRECTOR: John P. Jewett

3. LOCATION: A. Las Vegas (Nearest City) B. Nye (County) C. Nevada (State)

4. P. O. ADDRESS: Nuclear Rocket Development Station P. O. Box 1
A. Jackass Flats (City) B. Nevada (State) C. 89023 (Zip Code) D. 702-986-5721 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 418
B. ALL OTHER PERSONNEL (Total): 491

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 16,673,000
B. EXTRAMURAL (Total): $

7. MAJOR FUNCTIONS AND ACTIVITIES:

The Nuclear Rocket Development Station, funded jointly by NASA and the Atomic Energy Commission, is the National site for conducting full-scale ground tests of nuclear reactors, engines and, eventually, complete flight stages as part of the Government's program to develop nuclear rockets for space flight use. The site, remote from populous areas, is arranged with suitable separation distances between test and support facilities. Remote control of tests and protection from high radiation levels and blast are provided at the test facilities.

Technical functions performed in support of testing activities include assembly, remote disassembly and examination of the reactors and engines; radiation services involving dosimetry, instrumentation, air sampling, decontamination, laboratory analysis, and storage and disposal of radioactive materials; storage, transfer and sampling of pressurants and propellants; non-destructive testing, including radiography; calibration of valves and other components to flow rates up to 780#/sec. of GN_2 and equivalent flow of other gases; and testing of components in cryogenic environment including use of LH_2 at flow rates up to 100 #/sec.

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876 8. MAJOR FACILITIES:

Test Cell "C" (Capability for testing nuclear reactors in up-firing position; 1,100,000 gallons LH_2 storage capacity; remotely located control room building).

Engine Test Stand #1 (Capability for testing nuclear engines in down-firing position in simulated space environment; underground adjacent control room).

Reactor Maintenance, Assembly, and Disassembly Building (Unshielded assembly bay; shielded disassembly bay and several hot cells; remote handling capability in disassembly bay and hot cells).

Engine Maintenance, Assembly, and Disassembly Building (Similar to Reactor Building but larger)

Test Cell "A" (used to test small nuclear reactors; mothballed)

Cryogenic Evaluation Laboratory

Radiographic Laboratory

Radioactive Material Storage Facility

Radiation Laboratory

9. COMMENT AND PUBLICATION REFERENCES:

Nuclear Propulsion for Space, February 1968
The Nuclear Rocket, AEC Division of Technical Information, Oark Ridge, Tennessee
The Nuclear Rocket Program
Station Users Handbook, April 1964
Reactor Test Facility Description and Safety Review, Los Alamos Scientific Laboratory, Los Alamos, New Mexico, September 1967

SEE ALSO THE AEC NUCLEAR ROCKET DEVELOPMENT STATION REPORT, ITEM 9, PAGE 110.

10. DATE OF REPORT: October 1969

PLUM BROOK STATION
INSTALLATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Lewis Research Center)

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Alan D. Johnson
A. TECHNICAL DIRECTOR: Alan D. Johnson

3. LOCATION: A. Sandusky (Nearest City) B. Erie (County) C. Ohio (State)

4. P. O. ADDRESS: NASA Plum Brook Station, Taylor and Columbus Roads
A. Sandusky (City) B. Ohio (State) C. 44870 (Zip Code) D. 419-625-1123 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 169
B. ALL OTHER PERSONNEL (Total): 528

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 12,731,000
B. EXTRAMURAL (Total): $ 5,429,000

7. MAJOR FUNCTIONS AND ACTIVITIES:

The research and development programs at the Plum Brook Station are under the technical direction of NASA's Lewis Research Center in Cleveland. They are conducted at this larger site because of the need for facility separation distances to minimize hazards. Reference should be made to the description of the NASA Lewis Research Center (Cleveland) for a more complete statement of major functions and activities.

The Station's activities include radiation effects studies on basic materials and components (including electrical, mechanical, and pneumatic components); basic physics experimental radiation effects pertinent to Nerva programs including fuel material development for energy conversion (particle thermionics) systems and fuel form development; research on the problems of the supersonic combustion ramjet engine for hypersonic flight speeds up to Mach 7; research testing of hydrogen-fluorine rocket engines (6,000 pound thrust) with low pressure exhaust conditions; and studies of nuclear rocket non-burning performance dynamics and its control.

Cryogenic propellant research is conducted by the use of vacuum facilities for testing space vehicle tankage through techniques of pressurization, expulsion and insulation of the cryogenic propellant systems. Space booster vehicles can be mounted rigidly for static structural tests or suspended on a cable and spring system for dynamic testing. Testing has included such vehicles as the Atlas booster. Complete static space environmental tests may be conducted on upper stage vehicles such as Centaur including the firing of the rocket engines. Such a spacecraft system can be subjected to long term conditions of cold, vacuum and solar heating prior to firing to simulate the effect of long coast periods.

The new Space Power Facility recently completed has a vacuum chamber measuring 100' in

878 diameter by 120' in height, and is capable of producing a vacuum equivalent to that found in space 100 to 300 miles above the earth. This facility is valuable in developing and conducting research on the large reliable space electric power generating systems and chemical rocket systems required for deep space missions. Testing is conducted at a number of isolated sites on cryogenic propellant components such as hydrogen pumps, turbine and valves, oxygen-fluorine components and other associated propulsion cryogenic systems.

8. MAJOR FACILITIES:

Some of the major laboratory facilities available at the Plum Brook Station are listed below:

- Altitude Rocket Test Facility
- Cryogenic Propellant Research Facility
- Dynamics Research Facility
- Fluid Dynamics Research Facility
- Fluorine Materials Facility
- Fluorine Pump Research Facility
- Hydrogen Pump Test Complex
- Hypersonic Test Facility
- Nuclear Rocket Dynamics and Control Facility
- Nuclear Test Reactor Facility
- Pump Dynamics Test Facility
- Spacecraft Propulsion Research Facility
- Space Power Facility
- Turbine Research Facility

9. COMMENT AND PUBLICATION REFERENCES:

NASA Technical Facilities Catalog, Volumes I and II, NHB 8800.5, March 1967

10. DATE OF REPORT: October 1969

SACRAMENTO TEST FACILITY
INSTALLATION

NATIONAL AERONAUTICS
AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Marshall Space
Flight Center)

879

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☒ CONTRACTOR-OPERATED
   C. CONTRACTOR: McDonnell Douglas Corporation

2. DIRECTOR: C. L. Flora A. TECHNICAL DIRECTOR: -

3. LOCATION: A. Sacramento (Nearest City) B. Sacramento (County) C. California (State)

4. P. O. ADDRESS: Sacramento Test Facility, 11505 Douglas Avenue
   A. Rancho Cordova (City) B. California (State) C. 95670 (Zip Code) D. 916-351-0550 (245) (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 156
   B. ALL OTHER PERSONNEL (Total): 235

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 12,820,000
   B. EXTRAMURAL (Total): $ -

7. MAJOR FUNCTIONS AND ACTIVITIES:

The NASA (Marshall) mission at the Sacramento Test Facility is the development and testing of the Saturn S-IVB stages for the Saturn IB and Saturn V launch vehicles.

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES
Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

880 8. MAJOR FACILITIES.

The Sacramento Test Facility is located on about 4,000 acres of land owned by the McDonnell Douglas Aircraft Company, and consists of static test facilities, post static checkout test facilities, component test facilities, and support facilities. NASA has a long-term lease agreement for the land which is composed of four distinct areas:

a. Complex Alpha: Two test stands utilized for the S-IVB common bulkhead test program and the liquid oxygen-hydrogen burner development and test program.

b. Complex Beta: Two test stands for the S-IVB stages.

c. Complexes Gamma and Kappa: Complex Gamma provides an auxiliary propulsion system test facility; Complex Kappa, located adjacent to Complex Gamma, consists of three test cells for cryogenic tests of component parts.

d. Administrative Area

The test complexes are adequately isolated from each other, and each contains ample room for additions and expansions.

9. COMMENT AND PUBLICATION REFERENCES:

Marshall Space Flight Center, Master Plan, Various Locations, Volume 4, 1968

10. DATE OF REPORT: October 1969

SANTA SUSANA TEST FACILITY
INSTALLATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Marshall Space Flight Center)

881

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ CONTRACTOR-OPERATED

C. CONTRACTOR: North American Rockwell Corporation (Rocketdyne Division)

2. DIRECTOR: Everett Johnson
A. TECHNICAL DIRECTOR: -

3. LOCATION: A. Santa Susana (Nearest City) B. Ventura (County) C. California (State)

4. P. O. ADDRESS: Santa Susana Facility, 6633 Canoga Ave.
A. Canoga Park (City) B. California (State) C. 91303 (Zip Code) D. 213-884-4000 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): (See Item 9)
B. ALL OTHER PERSONNEL (Total): (See Item 9)

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 101,000
B. EXTRAMURAL (Total): $ -

7. MAJOR FUNCTIONS AND ACTIVITIES:

The NASA (Marshall) mission at the Santa Susana Test Facility is the development and acceptance testing of the J-2 rocket engine for Saturn launch vehicles. In addition, the H-1 engine development program is conducted through static testing and component testing. F-1 engine components are also tested, and one section of the site is devoted to S-II stage developmental testing.

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES
Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

8. MAJOR FACILITIES:

The Santa Susana Test Facility is a complex of static test stands, component research laboratories, research facilities and support facilities. The total complex, approximately 1,600 acres, is owned or leased by the North American Rockwell Corporation with the exception of Air Force Plants 57 and 64 which occupy approximately 450 acres. Air Force Plant 64 is used for the manufacture of liquid oxygen and Plant No. 57 is used for static test firing and component testing. NASA utilization of the site is accomplished through a joint use agreement with the Air Force. Component, engine and stage testing capabilities are available as follows:

Component Testing:

Bravo II Area; F-1 engine turbopump testing
Component Test Laboraotires I, III, and V: NASA Utilizes from 55% to 75% of this capability for the F-1 and J-2 engine programs
Component Test Laboratory II: NASA utilizes 75% of this capability for the H-1 engine program.

Engine Testing:

Bowl Area; Stands 2 and 3; static testing of J-2 engines
Canyon Area; Stands II and III; developmental testing of H-1 engines
Delta Area; Dual Stand Delta 2; static testing of J-2 engines

Stage Testing:

Coca Area; Stand Coca 1; static testing of S-II battleship stage

9. COMMENT AND PUBLICATION REFERENCES:

(Item 5. Personnel: No activity requiring personnel as of June 30, 1969)

Marshall Space Flight Center Master Plan, Various Locations, Volume 4, 1968

10. DATE OF REPORT: October 1969

SEAL BEACH ASSEMBLY FACILITY
INSTALLATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Marshall Space Flight Center)

883

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☒ CONTRACTOR-OPERATED
   C. CONTRACTOR: Space Division, North American Rockwell Corporation

2. DIRECTOR: W. K. Gengelbach
   A. TECHNICAL DIRECTOR: -

3. LOCATION: A. Seal Beach (Nearest City) B. Orange (County) C. California (State)

4. P. O. ADDRESS: Seal Beach Assembly Facility, 12214 South Lakewood Boulevard
   A. Downey (City) B. California (State) C. 90241 (Zip Code) D. 213-594-2711 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 1,242
   B. ALL OTHER PERSONNEL (Total): 1,864

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 118,798,000
   B. EXTRAMURAL (Total): $ -

7. MAJOR FUNCTIONS AND ACTIVITIES:

The Seal Beach Assembly Facility is utilized to assemble the S-II stage for the Saturn V launch vehicle after delivery of subassemblies. The stage also undergoes hydrostatic testing, pneumatic testing, painting and packaging at this facility prior to transport to the Seal Beach Docks for delivery to testing sites.

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

884 8. MAJOR FACILITIES.

Significant facilities at the Seal Beach location include:

- Vertical Assembly and Hydro Test Building
- Pneumatic Test, Paint and Packaging.Building
- Structural Static Test Tower
- Vertical Checkout Facility
- Liquid Nitrogen Conversion Facility
- Subassembly Facility
- Pneumostatic Test Facility

9. COMMENT AND PUBLICATION REFERENCES:

Marshall Space Flight Center, Master Plan, Various Locations, Volume 4, 1968

10. DATE OF REPORT: October 1969

SLIDELL COMPUTER FACILITY
INSTALLATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Marshall Space Flight Center)

885

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☒ CONTRACTOR-OPERATED

C. CONTRACTOR: Ling-Temco-Vought Corporation

2. DIRECTOR: James L. Stamy A. TECHNICAL DIRECTOR: Robert L. Reeves

3. LOCATION: A. Slidell (Nearest City) B. St. Tammany (County) C. Louisiana (State)

4. P. O. ADDRESS: Slidell Computer Facility, P. O. Box 459

A. Slidell (City) B. Louisiana (State) C. 70458 (Zip Code) D. 504-255-6401 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 110
B. ALL OTHER PERSONNEL (Total): 165

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 2,000,000
B. EXTRAMURAL (Total): $ -

7. MAJOR FUNCTIONS AND ACTIVITIES:

The Slidell Computer Facility fulfills the computational requirements of NASA's Michoud Assembly Facility and Mississippi Test Facility, both subsidiary organizations of the Marshall Space Flight Center. The requirements are in the areas of scientific, management, and engineering automated data processing, and in static and flight test data reduction evaluation. Slow and high speed data transmission facilities provide data exchange between the Slidell Facility, the Michoud Assembly Facility, the Mississippi Test Facility, the Marshall Space Flight Center, and the Kennedy Space Center.

886 8. MAJOR EQUIPMENT:

The capabilities of the Slidell Computer Facility are provided by the following major equipment items:

Data reduction equipment including analog-digital conversion, quicklook, and acoustics and vibration analysis equipment.
Honeywell H-200 computer
Honeywell H-1800 computer
IBM 7094 Systems (two)
IBM 1401 for peripheral support

9. COMMENT AND PUBLICATION REFERENCES:

NASA Technical Facilities Catalog, Volume II, NHB 8800.5, March 1967
Michoud Assembly Facility, Administrative and Manufacturing Capabilities, July 1969

10. DATE OF REPORT: October 1969

SOUNDING ROCKET LAUNCH SITES
INSTALLATION

NATIONAL AERONAUTICS
AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Goddard Space Flight Center and Wallops Station)

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Dr. John F. Clark
   A. TECHNICAL DIRECTOR: Robert C. Baumann

3. LOCATION: A. Greenbelt (Nearest City) B. Prince Georges (County) C. Maryland (State)

4. P. O. ADDRESS: Goddard Space Flight Center, Glenn Dale Road
   A. Greenbelt (City) B. Mayland (State) C. 20771 (Zip Code) D. 301-474-9000 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 122
   B. ALL OTHER PERSONNEL (Total): 124

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 3,680,000
   B. EXTRAMURAL (Total): $ 11,000,000

7. MAJOR FUNCTIONS AND ACTIVITIES:

Goddard Space Flight Center-Wallops Station sounding rocket experimentation programs are designed to support the basic and applied science endeavors of NASA in the fields of astronomy, solar physics, energetic particles and fields, ionospheric physics and planetary atmosphere and meteorology. Sounding rocket launchings also serve to flight-test equipment intended for use on orbiting satellites. Sounding rocket launchings are principally utilized as a device for taking measurements in the upper atmosphere, particularly in the zone between 20 and 300 miles.

8. MAJOR FACILITIES

Sounding rocket launch sites are located throughout the free world, and are generally found where large areas of unoccupied land are available, and the presence of geophysical phenomena are nearby.

Virtually all of the equipment used at sounding rocket launch sites is transportable, and can thus be moved under Wallops Station management from site to site as needed. Because of the mobility of the equipment, major systems have been identified below and then keyed to current locations of launch sites.

Equipment/Facility/System Description

a. Complete FM/FM Telemetry Facility
b. Single Station Sounding Rocket Tracking System (Dovap Trailer)

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c. Modified Nike-Ajax Launcher
d. Camera and Photography Facility for Photographing Vapor Clouds
e. Sound Ranging System
f. Aerobee 350 Rocket Launcher
g. 140-Foot Aerobee Launch Tower
h. Tubular Boom Launcher
i. MPS-19 Radar

Sounding Rocket Launch Site	Equipment/Facility/System A	B	C	D	E	F	G	H	I	
Argentina			X	X					X	
Brazil	X	X	X	X				X	X	
Corsica			X							
Fort Churchill, Canada	X	X	X	X	X		X		X	
India	X	X	X	X						
Pakistan			X	X	X				X	
Point Barrow, Alaska	X	X	X	X	X				X	
Spain	X	X	X							
Surinam (Dutch Guiana)			X	X						
Sweden	X	X	X	X						
Wallops Island, Virginia	X	X	X	X	X	X			X	
White Sands, New Mexico	X	X	X	X	X	X	X*		X	*(2)

9. COMMENT AND PUBLICATION REFERENCES:

NASA Sounding Rocket Program Summary of Sounding Rocket Flights, November 1966
NASA Sounding Rocket Program Summary of Sounding Rocket Flights, July 1968
NASA Sounding Rocket Flights Compendium

10. DATE OF REPORT: November 1969

SPACE RADIATION EFFECTS LABORATORY
INSTALLATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Langley Research Center)

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☒ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: College of William and Mary, Virginia

2. DIRECTOR: Dr. Robert T. Siegel
A. TECHNICAL DIRECTOR: Dr. Robert T. Siegel

3. LOCATION: A. Newport News (Nearest City) B. --- (County) C. Virginia (State)

4. P. O. ADDRESS: Space Radiation Effects Laboratory 11970 Jefferson Avenue
A. Newport News (City) B. Virginia (State) C. 23606 (Zip Code) D. 703-877-9231 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 6
B. ALL OTHER PERSONNEL (Total): 52

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,367,000
B. EXTRAMURAL (Total): $ 99,000

7. MAJOR FUNCTIONS AND ACTIVITIES:

The Space Radiation Effects Laboratory is engaged in the following major activities: a) basic and applied research in simulation of space radiation environments for the calibration and testing of space vehicle instrumentation; b) radiation effects measurements on materials and biological systems; c) investigations of materials analysis techniques utilizing nuclear radiation; d) investigations of the effects of simultaneous proton and electron irradiation; e) studies of reactions induced by solar flare protons on simulated lunar materials; and f) long-term biological effects of the exposure of animals to low-level high-energy proton irradiation and intense electron irradiation.

Other research activities include: a) studies of nuclear structures by means of protons, electrons, pions, muons, and gamma rays, as well as elementary particle experiments using these radiation beams; b) nuclear chemistry investigations of spallation reactions; c) proton and pion scattering studies; and d) studies of accelerators and particle beam transport devices.

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8. MAJOR EQUIPMENT:

Accelerator, Electron (Dynamitron): energy 0.5 - 2.5 MeV; current 3 ma
Accelerator, Electron (Linac): energy 3-10 MeV; current 1 ma at 7 MeV
Accelerator, Proton (Synchrocyclotron): energy 600 MeV at full radius; internal current 2.5ua; extracted current 4 x 10^{11} protons/sec at 600 MeV or 4 x 10^{10} protons/sec at 300 MeV
Beam Transport Magnets and Power Supplies: Bending Magnets - (18" x 36" x 9" gap, 300 kW), (20" x 20" x 9" gap, 175 kW)' Quadrupole Magnets (12" aperture x 24" length, 125 kW) (12" aperture x 12" length, 95 kW)
Data Acquisition System: IBM (360/44) with nuclear interface, three tape drives, two single disc drives, remote typewriter, general digital and analogue input -output unit, line printer and card read punch
Liquid Hydrogen Condenser: Recondenser System; 10 watts at 20.4°K
Meson Channel: pions (100 MeV, 5 x 10^5/sec); muons (100 MeV, 1 x 10^5/sec)
Neutron Generator: (14 MeV, 1 x 10^{11}/sec)
Nuclear Instrumentation Pool: fast (200 MHz) logic circuits; nuclear spectroscopy amplifiers and logic; photomultiplier power supplies; pulse height analyzers (to 4096 channel capacity); scalers (100 MHz) and controls; solid state (Si((Li)) and Ge((Li)) and scintillation detector
Pion Channels: pions (100-400 MeV, 5 x 10^5/sec)
Proton Transport System: protons (50-600 MeV, 2 x 10^7 - 4 x 10^{11}/sec)
Scattering Chamber: 64" diameter, 10^{-6} torr vacuum system

9. COMMENT AND PUBLICATION REFERENCES:

SREL Users Handbook
SREL Annual Reports - 1967, 1968
SREL Abstracts of Experiments in Progress, September 1969
Measurement of the Internal Beam of the SREL 600 MeV Synchrocyclotron, E.G. Michaelis, November 1967
External Beam Current Measurements on the Synchrocyclotron, L. W. Swenson and W.H. Hendrick November 1967
Decay of Radioactivity in the Cyclotron Vault, W. G. Hendrick and R. A. Beck, January 1968
Introduction to the SREL On-Line Computer Programming System, D.I. Hopp, March 1968
Utility Programs: Descriptions and Introductions, D. I. Hopp, March 1968
Higher, More Stable Synchrocyclotron Beam with a Radio Frequency Band Allowing Filter, R. Bish, September 1968

10. DATE OF REPORT: October 1969

SPACE TRACKING AND DATA ACQUISITION NETWORK
INSTALLATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Goddard Space Flight Center)

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☒ CONTRACTOR-OPERATED

C. CONTRACTOR: Bendix Field Engineering Corporation and RCA Radio Corporation of America

2. DIRECTOR: Dr. John F. Clark

A. TECHNICAL DIRECTOR: John T. Mengel

3. LOCATION: A. Greenbelt (Nearest City) B. Prince Georges (County) C. Maryland (State)

4. P. O. ADDRESS: Goddard Space Flight Center, Glenn Dale Road

A. Greenbelt (City) B. Maryland (State) C. 20771 (Zip Code) D. 301-474-9000 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 500

B. ALL OTHER PERSONNEL (Total): 2,100

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 45,920,000

B. EXTRAMURAL (Total): $ 12,328,000

7. MAJOR FUNCTIONS AND ACTIVITIES:

The Space Tracking and Data Acquisition Network under management by the Goddard Space Flight Center provides tracking and data acquisition support to unmanned scientific and applications spacecraft programs regardless of launching agency, either U. S. or foreign, as approved by the NASA Office of Tracking and Data Acquisition. The network consists of a worldwide arrangement of multi-purpose instrumentation stations with network operations controls and project operations control centers and data processing facilities located at the Goddard Center. The network is supported by the NASA Communications Network.

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Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR FACILITIES

Space Tracking and Data Acquisition Network stations are located at: Barstow, California; Carnarvon, Australia; Fairbanks, Alaska; Fort Myers, California; Johannesburg, Republic of South Africa; Kauai, Hawaii; Orroral, Australia; Quito, Ecuador; Rosman, North Carolina; St. John's, Newfoundland; Santiago, Chile; Tananarive, Madagascar; and Winkfield, England. Most stations have tracking, telemetry and data acquisition, and command capability.

Network equipment includes the following systems:

Tracking

Minitrack Interferometer System: This system provides angular position measurements by phase comparisons of 136 - 138 MHz signals from a spacecraft.

Range and Range Rate System: This side-tone ranging system provides high precision range and radial velocity measurements of spacecraft, equipped with a ranging transponder.

Telemetry and Data Acquisition

85 Foot Dish Antenna to receive 136, 400 and 1700 MHz
40 Foot Dish Antenna to receive 136 and 400 MHz.
Multi-yagi array antenna to receive 136 MHz
Applications Technology Satellite Ground System.

Command

Multi-yagi array antenna with 2.5 KW and 5.0 KW transmitters to send tone and tone-digital encoded commands in to 120-154 MHz range.

In addition, the network operates one DC6 aircraft which contains electronic equipment used to calibrate the multiple ground systems at the stations.

9. COMMENT AND PUBLICATION REFERENCES:

STADAN Tracking and Data Acquisition Network Manual, August 1969
The Evolution of the Space Tracking and Data Acquisition Network, January 1967
Space Tracking and Data Acquisition Network Facilities Report, December 1965

10. DATE OF REPORT: November 1969

SYCAMORE CANYON TEST SITE
INSTALLATION

NATIONAL AERONAUTICS
AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Lewis Research Center)

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1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☒ CONTRACTOR-OPERATED
   C. CONTRACTOR: General Dynamics Corporation (Convair Division)

2. DIRECTOR: Dr. Abe Silverstein
   A. TECHNICAL DIRECTOR: E. R. Jonash

3. LOCATION: A. San Diego (Nearest City) B. San Diego (County) C. California (State)

4. P. O. ADDRESS: General Dynamics/Convair, Kearny Mesa Plant, 5001 Kearny Villa Road
   A. San Diego (City) B. California (State) C. 92112 (Zip Code) D. 714-277-8900 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 0
   B. ALL OTHER PERSONNEL (Total): 6

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 75,000
   B. EXTRAMURAL (Total): $ -

7. MAJOR FUNCTIONS AND ACTIVITIES:

The Sycamore Canyon Test Site was developed to provide static test firing facilities for missiles early in the Atlas Program. Centaur testing capability was subsequently added. The site is used for testing to maximum run durations, and for the development and refinement of countdown procedures and inspection processes. A variety of dynamic, tanking and weight measurement functions are also performed at the site.

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8. MAJOR FACILITIES:

The Test Site comprises a complex of individual test stands and support facilities suitably isolated by a terrain composed of steep hills and valleys. Some of the major facilities are listed below:

Component Functional Test Facility
Helium storage (480,000 cubic feet @ 5,000 psi)
S-1 Test Stand - testing capability from Atlas up to 1,000,000 pounds of thrust)
S-2 Test Stand - testing capability from Atlas up to 1,000,000 pounds of thrust)
S-3 Test Stand - Vega capability-foundation, concrete stand and utility lines only
S-4 Test Stand - Centaur testing capability.

9. COMMENT AND PUBLICATION REFERENCES:

This site is in the process of being closed and will be transferred to other interested Government agencies or disposed of by standard procedures. Useful equipment is being removed and transferred to NASA's Lewis Research Center facilities.

10. DATE OF REPORT:

TABLE MOUNTAIN FACILITY
INSTALLATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Jet Propulsion Laboratory)

895

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
  (1) ☐ GOVERNMENT-OPERATED
  (2) ☐ FFRDC
  (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
  (1) ☐ GOVERNMENT-OPERATED
  (2) ☒ CONTRACTOR-OPERATED

C. CONTRACTOR: California Institute of Technology (Jet Propulsion Laboratory)

2. DIRECTOR: Earl S. Ivie
A. TECHNICAL DIRECTOR: -

3. LOCATION: A. Wrightwood (Nearest City) B. San Bernardino (County) C. California (State)

4. P. O. ADDRESS: JPL Table Mountain Facility, P. O. Box 367
A. Wrightwood (City) B. California (State) C. 92397 (Zip Code) D. 714-249-3650 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 2
B. ALL OTHER PERSONNEL (Total): 3

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 500,000
B. EXTRAMURAL (Total): $ -

7. MAJOR FUNCTIONS AND ACTIVITIES:

The Table Mountain Facility is located at an elevation of 7,500 feet in the San Gabriel Mountains approximately 65 miles northeast of the Jet Propulsion Laboratory (JPL) in Pasadena, California. The location enjoys clear, stable, dry air, and for this reason is recognized as a superior site for solar and astronomical observations.

JPL exploits the favorable atmospheric conditions at the site in support of its development and research activities in two general categories:

a. Optical and radio astronomy. Two small reflecting telescopes and one 18-foot millimeter wave antenna are used in observations of the moon and planets in support of planetary science programs.

b. Development and qualification of solar-power devices for spacecraft applications. Facilities provide for development testing of solar thermionics devices as well as routine testing and checkout of solar-cell panels for flight spacecraft. A separate test area is maintained for the use of industrial firms performing testing activities under Government contract.

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896 8. MAJOR FACILITIES:

The site was obtained from the Smithsonian Institution in 1962 and is occupied under the terms of a Special Use Permit granted by the U. S. Forest Service. The principal technical facilities presently in operation are:

16-Inch Reflecting Telescope (f/50 Cassegrain configuration)
24-Inch Reflecting Telescope (f/16 Cassegrain and F/36 Coude configurations)
16-Foot Radio Telescope (millimeter wave antenna)
Solar Power Test Laboratory

9. COMMENT AND PUBLICATION REFERENCES:

NASA Tech Facilities Catalog, Vol. 1, NHB 8800.5, March 1967

10. DATE OF REPORT: October 1969

WALLOPS STATION
INSTALLATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Robert L. Krieger
A. TECHNICAL DIRECTOR: Robert L. Krieger

3. LOCATION: A. Chincoteague (Nearest City) B. Accomack (County) C. Virginia (State)

4. P. O. ADDRESS: Wallops Station
A. Wallops Island (City) B. Virginia (State) C. 23337 (Zip Code) D. 703-824-3411 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 112
B. ALL OTHER PERSONNEL (Total): 720

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 15,811,000
B. EXTRAMURAL (Total): $ 1,871,000

7. MAJOR FUNCTIONS AND ACTIVITIES:

Wallops Station is primarily a launch and aeronautical test facility operated by NASA for the purpose of gathering information about the earth's atmosphere and its near-space environment, and to conduct scientific experiments in the field of aeronautics.

The Station obtains scientific data about the atmosphere and the space environment utilizing launch vehicles ranging in size from the small Arcas and Hasp meteorological rockets to the 72-foot Scout vehicle with orbital capability. Wallops Station prepares, assembles, and launches experimental payloads; positions them correctly in space at the right velocity; tracks them; and acquires meaningful data.

In addition to supporting rocket-propelled experiments, Wallops uses its facilities for many other research projects, such as space component tests utilizing helicopter or aircraft drops; slow speed landing techniques for jet aircraft; anti-skid tests on grooved runways; noise abatement; and laser and radar tracking of aircraft and satellites.

A sizable portion of the Station's effort is devoted to NASA's program of international cooperation in space research. Many countries have sent representatives to observe operations and procedures. Wallops has assisted these countries with the training of personnel, activation of their launch sites, or launching their experiments.

Wallops' mission also includes management of NASA sponsored projects, such as the Orbiting Frog Otolith project; the Experimental Inter-American Meteorological Rocket Network; and a Bio-Space Technology Training Program for bioscientists. Wallops Station also has responsibility for implementation of remote site launching and tracking facilities, including mobile range facilities transportable anywhere, and an Arctic Launch Site at Point Barrow, Alaska.

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8. MAJOR FACILITIES.

The physical plant is contained in three separate land areas known as the Main Base, Wallops Island, and Wallops Mainland. Many technical facilities and laboratories are available including vehicle payload preparation facilities, launch facilities, tracking and data acquisition facilities, and a research airport. Some of the more significant facilities are listed below:

Aircraft for Range Surveillance and Research Projects (2)
Digital Computing Facilities
Instrument Calibration Laboratory
Launch Complexes up to Scout Capability
Meteorological Facilities
Mobile and Fixed Telemetry Facilities
Optical and Photographic Facilities
Photographic Laboratory
Radar Atmospheric Research Facility
Range Control and Communications Facilities
Research Airport (Runways up to 8,753 feet)
Research Ship for Data Acquisition and Recovery Operations (1)
Rocket-Propelled Vehicle Storage and Preparation Facilities
Tracking and Surveillance Radars
Vehicle and Payload Checkout Facilities
Vehicle and Payload Spin Balance Facility
Wallops Arctic Launch Site, Pt. Barrow, Alaska
Wallops Down Range Tracking Stations, located at Daughtery, Va.;
    Eastville, Va.; and Coquino, N.C.

9. COMMENT AND PUBLICATION REFERENCES:

NASA Facts - Wallops Station,December 1967
NASA Technical Facilities Catalog, Vol. 1, NHB 8800.5, March 1967
NASA Wallops Station Handbook, April 1964
NASA Wallops Station Handbook, General Information, February 1964.

10. DATE OF REPORT: September 1969

WESTERN TEST RANGE
INSTALLATION

NATIONAL AERONAUTICS
AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Kennedy Space Center)

899

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Henry R. Van Goey
A. TECHNICAL DIRECTOR: Henry R. Van Goey

3. LOCATION: A. Lompoc (Nearest City) B. Santa Barbara (County) C. California (State)

4. P. O. ADDRESS: NASA Western Test Range, P. O. Box 425
A. Lompoc (City) B. California (State) C. 93436 (Zip Code) D. 805-865-2001 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 50
B. ALL OTHER PERSONNEL (Total): 65

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,600,000
B. EXTRAMURAL (Total): $ -

7. MAJOR FUNCTIONS AND ACTIVITIES:

The Western Test Range is responsible for the integration, test, checkout and launch of all unmanned light and medium vehicles required in missions assigned by NASA's Kennedy Space Center.

NASA activities at the Western Test Range are located on Vandenburg Air Force Base, a geographically unique area in that direct polar orbit launches are possible without overflying any land masses.

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8. MAJOR FACILITIES:

As indicated in the following table, facilities are available to launch light/medium vehicles with payloads up to 1,800 pounds.

Launch Pad Designation	Launch Vehicle	Payload Weight for 300 Nautical Mile Polar Orbit
SLC-2E	DELTA (TAD)	1,500 pounds
SLC-2W	THOR/AGENA (TAT)	1,800 pounds
SLC-5	SCOUT	250 pounds

Some of the more significant supporting installations are listed below:

- Dynamic Balancing Facility
- Scout Spin Test Facility
- Scout Systems Checkout Facility
- Spacecraft Laboratory Building:
  - Data Acquisition System
  - Spacecraft Interogation System
  - Telemetry/Doppler Ground Station

9. COMMENT AND PUBLICATION REFERENCES:

Western Test Range Operations Handbook, January 1968

10. DATE OF REPORT: October 1969

WHITE SANDS TEST FACILITY
INSTALLATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AGENCY OR DEPT. (Manned Spacecraft Center)

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Kenneth B. Gilbreath
A. TECHNICAL DIRECTOR: Edwin J. Burke

3. LOCATION: A. Las Cruces (Nearest City) B. Dona Ana (County) C. New Mexico (State)

4. P. O. ADDRESS: NASA, White Sands Test Facility, Post Office Drawer MM
A. Las Cruces (City) B. New Mexico (State) C. 88001 (Zip Code) D. 505-524-5011 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 430
B. ALL OTHER PERSONNEL (Total): 224

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ $13,000,000
B. EXTRAMURAL (Total): $ -

7. MAJOR FUNCTIONS AND ACTIVITIES:

The White Sands Test Facility conducts developmental and operational tests of spacecraft propulsion and power generating systems and related subsystems in support of research and development projects under the management of NASA's Manned Spacecraft Center. The propulsion systems testing facilities at White Sands provide a unique capability to perform both rocket engine and integrated propulsion systems development, qualification and flight readiness verification testing to the levels of quality and accuracy required for manned spacecraft.

The installation has actively supported the NASA Apollo Program in the qualification of spacecraft systems by satisfactorily completing flight testing of the Command and Service Module Structures, Launch Escape System, and Earth Landing System; integrated ground testing of the Service Propulsion, Reaction Control and Electrical Power Systems; testing of the Lunar Module Ascent, Descent, and Reaction Control Systems; flammability and toxicity screening of spacecraft non-metallic materials; and related systems and component testing.

8. MAJOR FACILITIES:

The NASA White Sands Test Facility possesses a broad spectrum of capability to conduct research, development and test programs. These capabilities include physical resources that range from altitude simulation propulsion test stands to modern laboratories.

The installation has five fully equipped and operational propulsion test stands (25,000 pound thrust class) located in two geographically separated areas. Three of these stands have altitude simulation capabilities in which propulsion systems testing can be performed in a sustained near-vacuum environment; the remaining two stands are open, or ambient, stands. Each test

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stand is essentially self-contained and separately monitored and controlled, thus allowing simultaneous progress of test activities on a 24-hour per day basis. Hot firing tests are remotely controlled from blockhouse control centers equipped with real-time monitoring, data acquisition, and display systems. The propulsion test areas have been designed and sited to permit simultaneous conduct of hazardous test operations, such as propellant loading, venting, or hot firings, without causing operational interference or requiring evacuation of other areas. The test stands are provided with the necessary control centers, data acquisition systems, standby power generation, propellant loading and conditioning systems, and related support systems.

Support Facilities include:

Assembly Areas (two) (height, 40 feet) with direct access to Class 1000 clean rooms

Laboratory Complex which provides facilities for data processing; chemical, metalogical, shock, vibration, and gas analysis; contamination control, primary standards; and mechanical calibration.

Propellants and Pressurants Areas for test and distribution

9. COMMENT AND PUBLICATION REFERENCES:

Capabilities of the NASA White Sands Test Facility, January 1970

10. DATE OF REPORT: October 1969

National Science Foundation

AMUNDSEN-SCOTT SOUTH POLE STATION
INSTALLATION

NATIONAL SCIENCE FOUNDATION
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Louis O. Quam
A. TECHNICAL DIRECTOR: Louis O. Quam

3. LOCATION: A. Geographic South Pole (Nearest City) B. Antarctica (County) C. 90° S. Latitude (State)

4. P. O. ADDRESS: Amundsen-Scott South Pole Station, c/o Head, Office of Antarctic Programs, National Science Foundation
A. Washington (City) B. D.C. (State) C. 20550 (Zip Code) D. 202-632-4221 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): See item 9
B. ALL OTHER PERSONNEL (Total): " " "

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ See item 9
B. EXTRAMURAL (Total): $ " " "

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Amundsen-Scott South Pole Station provides logistical support and facilities for scientific research and observations in the U.S. Antarctic Research Program, including, but not limited to, studies in aurora and airglow (04-01), cosmic radiation (04-01), ionosphere and the magnetosphere (04-01), micropulsation (04-01), meteorology (04-02), environmental biology (06-06), stress physiology (06-19), seismology (08-11), glacial geochemistry (08-12), glacial geophysics (08-12), glaciology (08-12), and geomagnetism (08-14).

Pole Station also provides refueling capabilities for aircraft engaged in transporting scientific field parties to remote areas and in flying airborne remote-sensors for geophysical investigations.

A. ADDITIONAL COSATI CODES:

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8. MAJOR EQUIPMENT:

The South Pole Station is equipped with a worldwide seismograph network station, a geomagnetic observatory, VLF radio laboratory, complete meteorological station, and earth-tide recording gravity meters. An ionosonder and all-sky cameras supplement other programs in aurora and ionospheric physics.

9. COMMENT AND PUBLICATION REFERENCES:

Personnel: Station accommodated 6 NSF-supported scientific personnel and 13 Navy logistic personnel in 1969 winter; up to 10 researchers can be accommodated.

Funding: Estimated annual logistic cost, $2,000,000, funded principally by U.S. Navy.

Application for access to Amundsen-Scott South Pole Station research and support facilities is by research proposal for grant support to the Office of Antarctic Programs, National Science Foundation.

Pub. Refs: Support for Science, Antarctica, U.S. Naval Support Force, Antarctica, Feb. 1968, U.S. Government Printing Office, Washington, D.C. 20402, 45¢.

Nelson, B. "Science in Antarctica: Problems and Opportunities on the Ice," Science, V. 159, No. 3813, pp. 407-412, Jan. 26, 1968.

Report on United States Antarctic Research Activities, 1968-69/United States Antarctic Research Activities Planned for 1969-70, Committee on Polar Research, National Academy of Sciences, Washington, D.C. 20418, July 1969.

Antarctic Journal of the U.S., IV-4, July-Aug. 1969 and IV-5, Sept.-Oct. 1969, National Science Foundation, U.S. Government Printing Office, Washington, D.C. 20402, subscr. $2.50/yr.

10. DATE OF REPORT: December 23, 1969

BYRD STATION
INSTALLATION

NATIONAL SCIENCE FOUNDATION
AGENCY OR DEPT.

907

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Louis O. Quam
A. TECHNICAL DIRECTOR: Louis O. Quam

3. LOCATION: A. Marie Byrd Land (Nearest City) B. Antarctica (County) C. 80°01' S. 119°32' W. (State)

4. P. O. ADDRESS: Byrd Station, c/o Head, Office of Antarctic Programs, National Science Foundation

A. Washington (City) B. D. C. (State) C. 20550 (Zip Code) D. 202-632-4221 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): See item 9
B. ALL OTHER PERSONNEL (Total): " " "

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ See item 9
B. EXTRAMURAL (Total): $ " " "

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Byrd Station provides logistical support and facilities for scientific research and observations in the U.S. Antarctic Research Program, including, but not limited to, studies in aurora and airglow (04-01), ionosphere (04-01), the magnetosphere, riometry (04-01) micropulsation (04-01), very-low-frequency (VLF) and high frequency (HF) e-m radiation (04-01), low energy solar cosmic rays, (04-01), meteorology (04-02), seismology (08-11), glacial geochemistry (08-12), glacial geophysics (08-12), glaciology (08-12), and geomagnetism (08-14).

Byrd Station also serves as a staging and support base for field research in the surrounding area, primarily for studies in geology (08-07), geophysics (08-11), and glaciology (08-12).

A. ADDITIONAL COSATI CODES:

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8. MAJOR EQUIPMENT:

Byrd Station is equipped with the conventional instrumentation normally employed in the performance of research in the several activity areas reported in item 7.

In addition, the station has a unique hydraulic-powered drilling hoist and downhole drill assembly capable of drilling through ice to depths in excess of 7,000 feet, and a thermo-electric drill assembly for 6"-diameter coring through ice to depths of 1,000 feet.

The station is equipped with a satellite tracking antenna and recording equipment for readout of the POGO series of satellites.

A VLF substation is located 11 miles from Byrd Station, with 10- and 21-mile-long antennas laid at right angles on the snow surface. The 21-mile antenna is parallel to the geomagnetic meridian. The exciter for radiating energy from the antennas was designed by the research personnel.

9. COMMENT AND PUBLICATION REFERENCES:

Personnel: Station accommodated 7 NSF-supported scientific personnel and 15 Navy logistic personnel in the 1969 winter; up to 15 researchers can be accommodated.

Funding: Estimated annual logistic cost, $1,500,000, funded principally by U.S. Navy.

Application for access to Byrd Station research and support facilities is by research proposal for grant support to the Office of Antarctic Programs, National Science Foundation.

Pub. Refs: Support for Science, Antarctica, U.S. Naval Support Force, Antarctica, Feb. 1968, U.S. Government Printing Office, Washington, D.C. 20402, 45¢.

Nelson, B. "Science in Antarctica: Problems and Opportunities on the Ice," Science, V. 159, No. 3813, pp. 407-412, Jan. 26, 1968.

Report on United States Antarctic Research Activities, 1968-69/United States Antarctic Research Activities Planned for 1969-70, Committee on Polar Research, National Academy of Sciences, Washington, D.C. 20418, July 1969.

Antarctic Journal of the U.S., IV-4, July-Aug. 1969 and IV-5, Sept.-Oct. 1969, National Science Foundation, U.S. Government Printing Office, Washington, D.C. 20402, subscr. $2.50/yr.

10. DATE OF REPORT: December 23, 1969

CERRO TOLOLO INTER-AMERICAN OBSERVATORY
INSTALLATION

NATIONAL SCIENCE FOUNDATION
AGENCY OR DEPT.

909

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: Association of Universities for Research in Astronomy, Inc. (AURA)

2. DIRECTOR: Dr. V. M. Blanco
A. TECHNICAL DIRECTOR: Dr. V. M. Blanco

3. LOCATION: A. La Serena - Chile, S. A. (Nearest City) B. -- (County) C. -- (State)

4. P. O. ADDRESS: Cerro Tololo Inter-American Observatory, Casilla 63-D

A. La Serena, Chile, South America (City) B. (State) C. (Zip Code) D. 328-J or 328-R (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 8
B. ALL OTHER PERSONNEL (Total): 61

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 4.55 million
B. EXTRAMURAL (Total): $ - 0 -

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The major functions of the Cerro Tololo Inter-American Observatory, a major optical astronomy facility located in the Southern Hemisphere, are to perform basic research in Astronomy and Astrophysics (03-01 - Astronomy - observations of celestial bodies) (03-02 Astronomy - Astrophysics - physical and chemical aspects of celestial bodies and astronomical spectroscopy); and to provide and manage the Observatory facilities for resident and visiting scientists.

A. ADDITIONAL COSATI CODES:

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8. MAJOR EQUIPMENT:

The Observatory has the following major equipment:
1) Two 16-inch telescopes
2) A 24/36-inch Schmidt Telescope (on loan from University of Michigan)
3) A 36-inch telescope
4) A 60-inch telescope
5) A 150-inch telescope is under construction.

9. COMMENT AND PUBLICATION REFERENCES:

The Cerro Tololo Inter-American Observatory headquarters is located in La Serena, Chile. The Observation station is located at Cerro Tololo, 45 miles distant, at one of the world's most outstanding astronomical sites.

Use of the facilities is granted to qualified scientists with approved observing programs, after application to the Observatory Director.

The Cerro Tololo Inter-American Observatory is a Federally Funded Contract R&D Center sponsored by the National Science Foundation.

Dormitory, Cafeteria and office space are available for staff and guests at the Observatory station.

10. DATE OF REPORT: September 18, 1969

HALLETT STATION
INSTALLATION

NATIONAL SCIENCE FOUNDATION
AGENCY OR DEPT.

911

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Louis O. Quam
A. TECHNICAL DIRECTOR: Louis O. Quam

3. LOCATION: A. Cape Hallett (Nearest City) B. Antarctica (County) C. 70°18'S. 170°18' E. (State)

4. P. O. ADDRESS: Hallett Station, c/o Head, Office of Antarctic Programs, National Science Foundation
A. Washington (City) B. D.C. (State) C. 20550 (Zip Code) D. 202-632-4221 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): See item 9
B. ALL OTHER PERSONNEL (Total): " " "

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ See item 9
B. EXTRAMURAL (Total): $ " " "

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Hallett Station provides logistical support and facilities for scientific research and observations in the U.S. Antarctic Research Program, including, but not limited to, studies in meteorology (04-02), biology (06-03), environmental biology (06-06), and microbiology (06-13).

Hallett Station also supports the summer scientific research of the New Zealand Antarctic Research Program.

A. ADDITIONAL COSATI CODES:

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8. MAJOR EQUIPMENT:

Hallett Station is equipped with a biological laboratory with conventional instrumentation to support the projects undertaken during the Antarctic summer described in item 7, and a surface and upper air weather observing station. Laboratory space formerly devoted to atmospheric physics, geomagnetism, and seismology is available, but no longer used for these purposes.

9. COMMENT AND PUBLICATION REFERENCES:

Personnel: Station will accommodate 5 NSF-supported scientific personnel and 5 Navy logistic personnel in the 1969-70 summer; Hallett Station operates only in the Antarctic summer; therefore, no personnel were present as of June 1969.

Funding: Estimated annual logistic cost, $100,000, funded principally by U.S. Navy.

Hallett Station is a joint New Zealand-U.S. research station now in operation only during the Antarctic summer.

Access to Hallett Station research and support facilities is by research proposal for grant support to the Office of Antarctic Programs, National Science Foundation.

Pub. Refs: Support for Science, Antarctica, U.S. Naval Support Force, Antarctica, Feb. 1968, U.S. Government Printing Office, Washington, D.C. 20402, 45¢.

Nelson, B. "Science in Antarctica: Problems and Opportunities on the Ice," Science, V. 159, No. 3813, pp. 407-412, Jan. 26, 1968.

Report on United States Antarctic Research Activities, 1968-69/United States Antarctic Research Activities Planned for 1969-70, Committee on Polar Research, National Academy of Sciences, Washington, D.C. 20418, July 1969.

Antarctic Journal of the U.S., IV-4, July-Aug. 1969 and IV-5, Sept.-Oct. 1969, National Science Foundation, U.S. Government Printing Office, Washington, D.C. 20402, subscr. $2.50/yr.

10. DATE OF REPORT:
December 23, 1969

KITT PEAK NATIONAL OBSERVATORY
INSTALLATION

NATIONAL SCIENCE FOUNDATION
AGENCY OR DEPT.

913

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: Association of Universities for Research in Astronomy, Inc. (AURA)

2. DIRECTOR: Dr. N. U. Mayall
A. TECHNICAL DIRECTOR: Dr. N. U. Mayall

3. LOCATION: A. Tucson *(Nearest City)* B. Pima *(County)* C. Arizona *(State)*

4. P. O. ADDRESS: Kitt Peak National Observatory, 950 N. Cherry Avenue
A. Tucson *(City)* B. Arizona *(State)* C. 85717 *(Zip Code)* D. 602-327-5511 *(Telephone (Area Code & No.)*

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 61
B. ALL OTHER PERSONNEL (Total): 211

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 5.7 million
B. EXTRAMURAL (Total): $ - 0 -

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The major functions of the Kitt Peak National Observatory, the Nation's major optical astronomy facility, are basic research in Astronomy and Astrophysics (03-01 - Astronomy - observations of celestial bodies) (03-02 - Astrophysics - physical and chemical aspects of celestial bodies and astronomical spectroscopy) and to provide and operate major astronomy facilities in the Northern Hemisphere for resident and visiting scientists.

The Observatory program operates through three major program divisions: Stellar Astronomy, Solar Astronomy, and Planetary Astronomy. Aerobee sounding rockets carrying scientific payloads developed and/or integrated by the Planetary Division for both staff and visiting investigators are launched from the White Sands Missile Range, New Mexico.

The Observatory staff also studies equipment needs for optical astronomy and designs and plans advanced optical telescopes and instrumentation.

A. ADDITIONAL COSATI CODES:
04-01 - Atmospheric Physics - Airglow

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES
Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

The Tucson Headquarters provides computer facilities, library, data reduction equipment and optical shop.

The Kitt Peak observing station has the following major equipment:

1) 60-inch McMath Solar Telescope
2) 84-inch Optical Telescope
3) Two 36-inch Optical Telescopes
4) Two 16-inch Optical Telescopes
5) A 50-inch remotely controlled telescope
6) A 150-inch Optical Telescope (is under construction).

9. COMMENT AND PUBLICATION REFERENCES:

The Observatory facilities are located at Kitt Peak, 45 miles southwest of Tucson, Arizona. The site was chosen because of its generally clear weather, remoteness from the lights, smog, airplane vapor trails, etc. of large cities.

Dormitory, cafeteria and office space are available for staff and visitors.

AURA, the operating contractor of this Federally Funded R&D Center sponsored by the National Science Foundation, is a not-for-profit organization of nine universities: California, Chicago, Harvard, Indiana, Michigan, Ohio State, Princeton, Wisconsin, and Yale.

Kitt Peak National Observatory is open to all astronomers with suitable programs.

Ref: 1. Observatory Brochure: Kitt Peak National Observatory
Subjects: Scope of work and description of facilities.

10. DATE OF REPORT: October 9, 1969

MCMURDO STATION
INSTALLATION

NATIONAL SCIENCE FOUNDATION
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Louis O. Quam
A. TECHNICAL DIRECTOR: Louis O. Quam

3. LOCATION: A. Ross Island (Nearest City) B. Antarctica (County) C. 77°51' S. 166°37' E. (State)

4. P. O. ADDRESS: McMurdo Station, c/o Head, Office of Antarctic Programs, National Science Foundation
A. Washington (City) B. D.C. (State) C. 20550 (Zip Code) D. 202-632-4221 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): See item 9
B. ALL OTHER PERSONNEL (Total): " " "

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ See item 9
B. EXTRAMURAL (Total): $ " " "

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

McMurdo Station provides logistical support and facilities for scientific research and observations in the U.S. Antarctic Research Program at McMurdo Station and the surrounding ice-free areas as well as support for the inland Byrd and Amundsen-Scott South Pole Stations. The research carried out at McMurdo Station and the surrounding ice-free areas, includes, but is not limited to, studies in aurora and airglow (04-01), the ionosphere (04-01), low-energy solar cosmic rays (04-01), the magnetosphere (04-01), meteorology (04-02), biochemistry (06-01), terrestrial botany (06-03), terrestrial zoology (06-03), biological oceanography (08-01), geochemistry (08-04), satellite geodesy (08-05), geology (08-07), geomorphology (08-07), solid-earth geophysics (08-07), limnology (08-08), physical oceanography (08-10), glaciology (08-12), permafrost features (08-12).

Air and surface transportation and support equipment and supplies are available for research parties to nearby and distant localities.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

The station is equipped with two neutron monitor piles and two meson telescopes for cosmic ray studies. A 30- and a 50-MHz riometer laboratory nearby also is equipped with a total field magnetometer. A geodetic satellite tracking station is presently under a full schedule of tracking activities.

A 6,000-foot^2 major biological laboratory is available for multi-use needs of biological investigators.

A 1,400-foot^2 glaciology laboratory, equipped with microscopes, rock saws, and thin-section preparation equipment is available.

An 8,000-foot^2 field party center is equipped to support research teams with all supplies needed to permit remote area studies.

A 5,000-foot^2 vehicle maintenance center maintains 35 to 40 wheeled, tracked, and ski-equipped machines to transport science personnel.

A complete scuba service area is maintained to support underwater studies.

9. COMMENT AND PUBLICATION REFERENCES:

Personnel: Station accommodated 13 NSF-supported scientific personnel and 176 Navy logistic personnel in 1969 winter; up to 200 researchers can be accommodated.

Funding: Estimated annual logistic cost, $4,000,000, funded principally by U.S. Navy.

Application for access to McMurdo Station research and support facilities is by research proposal for grant support to the Office of Antarctic Programs, National Science Foundation.

Pub. Refs: Support for Science, Antarctica, U.S. Naval Support Force, Antarctica, Feb. 1968, U.S. Government Printing Office, Washington, D.C. 20402, 45¢.

Nelson, B. "Science in Antarctica: Problems and Opportunities on the Ice," Science, V. 159, No. 3813, pp. 407-412, Jan. 26, 1968.

Report on United States Antarctic Research Activities, 1968-69/United States Antarctic Research Activities Planned for 1969-70, Committee on Polar Research, National Academy of Sciences, Washington, D.C. 20418, July 1969.

Antarctic Journal of the U.S., IV-4, July-Aug. 1969 and IV-5, Sept.-Oct. 1969, National Science Foundation, U.S. Government Printing Office, Washington, D.C. 20402, subscr. $2.50/yr.

10. DATE OF REPORT: December 23, 1969

NATIONAL CENTER FOR ATMOSPHERIC RESEARCH
INSTALLATION

NATIONAL SCIENCE FOUNDATION
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☒ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR: University Corporation for Atmospheric Research (UCAR)

2. DIRECTOR: Dr. John W. Firor
   A. TECHNICAL DIRECTOR: Dr. John W. Firor

3. LOCATION: A. Boulder (Nearest City) B. Boulder (County) C. Colorado (State)

4. P. O. ADDRESS: National Center for Atmospheric Research, Box 1470
   A. Boulder (City) B. Colorado (State) C. 80302 (Zip Code) D. 303-444-5151 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 214
   B. ALL OTHER PERSONNEL (Total): 246

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 9,760,000
   B. EXTRAMURAL (Total): $ 4,310,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The major functions of the National Center for Atmospheric Research are basic research for understanding the behavior of the earth's atmosphere (04-01 Atmospheric Sciences - Atmospheric Physics, 04-02 - Meteorology); to serve as a planning center to develop large scale research programs in conjunction with other institutions; to manage and operate joint facilities essential to progress in atmospheric research; and to facilitate research and graduate training in the atmospheric sciences by resident and visiting scientists.

Center activities include the construction of models and computer simulations (09-02 Electronics and Electrical Engineering - Computers) of the global atmospheric circulation and of the processes in individual clouds, studies of the relationship between atmospheric electricity and raindrop formation, tropical meteorology, and the chemistry of the atmosphere including pollution effects. A part of the effort is devoted to the study of hailstorms in order to determine possible ways to reduce the effects of such storms.

Other activities include studies of the sun and its magnetic fields, the solar corona and solar prominences (03-02 Astrophysics).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

NCAR operates three joint-use facilities which supply services and equipment to support NCAR staff scientists, university scientists, and others:

1. Research Aviation Facility: Propeller-driven Beech Queen Air A-80; Turboprop de Havilland Buffalo; jet North American Sabreliner. These aircraft, specially modified and instrumented for atmospheric research, are based at Jeffco Airport near Boulder, Colorado.
2. Computing Facility: Operates a Control Data 6600 computer system at the NCAR Laboratory in Boulder, Colorado.
3. Field Observing Group: Maintains and operates M-33 radars, standard weather observing equipment, and other instruments and equipment used for atmospheric research field programs.

9. COMMENT AND PUBLICATION REFERENCES:

NCAR was established in June 1960 as a Federally Funded R&D Center with NSF sponsorship and UCAR management (a consortium of 24 universities).

NCAR annually hosts a number of scientific conferences and scientific visitors from numerous countries and universities. It also supports continuing programs for post-doctoral fellows; undergraduate cooperative work programs; and an Affiliate Professorship program.

NCAR is serviced by the National Scientific Balloon Facility, Palestine, Texas, for the launching, tracking and recovery of large balloons employed in Astrophysical studies.

Pub. Ref: Preliminary Plans for a National Institute for Atmospheric Research, Second Progress Report of the UCAR, Feb. 1959.

10. DATE OF REPORT: October 7, 1969

NATIONAL RADIO ASTRONOMY OBSERVATORY (NRAO) — INSTALLATION

NATIONAL SCIENCE FOUNDATION — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☒ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: Associated Universities, Inc. (AUI)

2. DIRECTOR: Dr. David S. Heeschen

A. TECHNICAL DIRECTOR: Dr. David S. Heeschen

3. LOCATION: A. Charlottesville, (Nearest City) B. n.a. (County) C. Virginia (State)

4. P. O. ADDRESS: National Radio Astronomy Observatory, Edgemont Road

A. Charlottesville (City) B. Virginia (State) C. 22901 (Zip Code) D. 703-296-0211 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 57

B. ALL OTHER PERSONNEL (Total): 178

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 4.8 million

B. EXTRAMURAL (Total): $ - 0 -

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The major functions of the National Radio Astronomy Observatory are to engage in basic research in radio astronomy (03-02 - Astrophysics - Radio Astronomy) and to provide and manage major radio astronomy facilities for resident research staff and visiting scientists. The National Radio Astronomy Observatory is the Nation's major radio astronomy facility.

The Observatory staff also studies equipment needs for radio astronomy and designs and plans advanced radio telescopes and instrumentation.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

The Green Bank observing station has the following major equipment:

(1) An interferometer system of three steerable 85-foot radio telescopes, operable at wavelengths as low as 3 cm.
(2) A 140-foot fully steerable radio telescope, operable to 2 cm.
(3) A 300-foot transit radio telescope, operable to 21 cm.
(4) A portable 42-foot radio telescope, operable to 3 cm.

9. COMMENT AND PUBLICATION REFERENCES:

NRAO operates observing stations at Green Bank, West Virginia and at Kitt Peak near Tucson, Arizona. The Kitt Peak observing station has a 36-foot millimeter-wave radio telescope, operable to 6 cm.

The Charlottesville Headquarters provides computer facilities, library data reduction equipment, and office space for both staff and visitors.

Use of the NRAO facilities is granted, after application to the Director, to qualified scientists having approved observing programs.

Associated Universities, Inc. (AUI), a not-for-profit organization of nine northeastern universities: Columbia, Cornell, Harvard, The Johns Hopkins University, M.I.T., Pennsylvania, Princeton, Rochester, and Yale, is the operating contractor for this Federally Funded R&D Center sponsored by the National Science Foundation.

Pub. Ref: 1. Observatory Brochure: National Radio Astronomy Observatory
Subject: Scope of work and description of facilities.

10. DATE OF REPORT: September 16, 1969

NATIONAL SCIENTIFIC BALLOON FACILITY
INSTALLATION

NATIONAL SCIENCE FOUNDATION
AGENCY OR DEPT.

921

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☒ CONTRACTOR-OPERATED

C. CONTRACTOR: University Corporation for Atmospheric Research (UCAR)

2. DIRECTOR: Dr. John W. Firor
A. TECHNICAL DIRECTOR: Al Morris

3. LOCATION: A. Palestine (Nearest City) B. Anderson (County) C. Texas (State)

4. P. O. ADDRESS: National Scientific Balloon Facility, Box 1175
A. Palestine (City) B. Texas (State) C. 75801 (Zip Code) D. 214-729-6921 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 17
B. ALL OTHER PERSONNEL (Total): 26

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,030,000
B. EXTRAMURAL (Total): $ 390,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The National Scientific Balloon Facility provides technical support and services for the National Center for Atmospheric Research and participating university scientists in the launching, tracking and recovery of large balloons employed for the collection of data in connection with scientific research in Astrophysics, (03-02), Atmospheric Physics (04-01), Meteorology (04-02), Particle Physics (20-08), at flight altitudes as high as 145,000 feet carrying instruments weighing up to five tons.

Research is carried out on the improvement of balloon materials to assure greater efficiencies and longer flight duration.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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922 **8. MAJOR EQUIPMENT:**

Launch pad and other launch equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Scientists with suitable programs can obtain access to installation facilities by application to the Director, University Corporation for Atmospheric Research, Box 1470, Boulder, Colorado 80302.

10. DATE OF REPORT: October 8, 1969

PALMER STATION
INSTALLATION

NATIONAL SCIENCE FOUNDATION
AGENCY OR DEPT.

923

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Louis O. Quam
A. TECHNICAL DIRECTOR: Louis O. Quam

3. LOCATION: A. Anvers Island (Nearest City) B. Antarctica (County) C. 64°46' S. 60°05' W. (State)

4. P. O. ADDRESS: Palmer Station, c/o Head, Office of Antarctic Programs, National Science Foundation

A. Washington (City) B. D.C. (State) C. 20550 (Zip Code) D. 202-632-4221 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): See item 9
B. ALL OTHER PERSONNEL (Total): " " "

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ See item 9
B. EXTRAMURAL (Total): $ " " "

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Palmer Station provides logistical support and facilities for scientific research and observations in the U.S. Antarctic Research Program, including, but not limited to, studies in biological oceanography (06-03), terrestrial botany (06-03), terrestrial zoology (06-03), satellite geodesy (08-05), geology (08-07), physical oceanography (08-10), glacial geophysics (08-12), and glaciology (08-12).

The station serves as home port for the 125-foot research trawler Hero, which operates in conjunction with the shore facility to provide a research "system" in studying scientific interests along the Peninsula.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

The station houses a modern biological laboratory equipped with major instrumentation comparable to that found in a university research laboratory. In addition, a machine shop and an electronic laboratory furnish basic support services to the Hero.

Storage for ship related heavy equipment is provided.

9. COMMENT AND PUBLICATION REFERENCES:

Personnel: Station accommodated 6 NSF-supported scientific personnel and 13 U.S. Navy logistic personnel in 1969 winter; up to 25 researchers can be accommodated.

Funding: Estimated annual logistic cost, $300,000, funded principally by U.S. Navy.

Application for access to Palmer Station research and support facilities is by research proposal for grant support to the Office of Antarctic Programs, National Science Foundation.

Pub. Refs: Support for Science, Antarctica, U.S. Naval Support Force, Antarctica, Feb. 1968, U.S. Government Printing Office, Washington, D.C. 20402, 45¢.

Nelson, B. "Science in Antarctica: Problems and Opportunities on the Ice," Science, V. 159, No. 3813, pp. 407-412, Jan. 26, 1968.

Report on United States Antarctic Research Activities, 1968-69/United States Antarctic Research Activities Planned for 1969-70, Committee on Polar Research, National Academy of Sciences, Washington, D.C. 20418, July 1969.

Antarctic Journal of the U.S., IV-4, July-Aug. 1969 and IV-5, Sept.-Oct. 1969, National Science Foundation, U.S. Government Printing Office, Washington, D.C. 20402, subscr. $2.50/yr.

10. DATE OF REPORT: December 23, 1969

RESEARCH SHIP ELTANIN — INSTALLATION

NATIONAL SCIENCE FOUNDATION — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☒ CONTRACTOR-OPERATED
   C. CONTRACTOR: Military Sea Transport Service *

2. DIRECTOR: Louis O. Quam
   A. TECHNICAL DIRECTOR: Louis O. Quam

3. LOCATION: A. Southern Oceans (Antarctic waters) (Nearest City) B. (County) C. (State)

4. P. O. ADDRESS: Research Ship ELTANIN, National Science Foundation
   A. Washington (City) B. D.C. (State) C. 20550 (Zip Code) D. 202- 632-24221 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): *
   B. ALL OTHER PERSONNEL (Total): 48

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 2,500,000
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The function of the Research Ship ELTANIN is to provide technical support and to serve as a mobile platform for the conduct of basic research in the Southern Oceans concerned with Biological Oceanography (08-01), Dynamic Oceanography (08-03), Geology (08-07), Physical Oceanography (08-10), Seismology (08-11), Magnetism (08-14), and Meteorology (04-02).

Research areas receiving major emphasis during FY 1969 included:

Metabolism of complete water columns
Dynamics of trophic relations in Antarctic waters
Biological productivity of Antarctic waters
Marine physical research in gravity, sub-bottom profiling, magnetic profiling, and bathymetry
Physical and chemical identification and measurement of movement of water masses
Bottom coring of sediments by piston and gravity corers.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

a. Balloon-tracking radar - AN/SPS-28
b. Precision Depth Recording System - down to 20,000 ft.
c. Satellite Navigation System (AN/SRN-9)
d. Interrogation, Recording and Location System (IRLS) platform
e. IBM 1130 computer
f. Winches
   1 - Trawl
   2 - BT
   2 - Hydro
   1 - Magnetometer cable
g. Labs:
   1 - Bio dry
   1 - Bio wet
   1 - Hydro
   1 - Electronics
   1 - Gravimeter
   1 - Meteorological
   1 - Data processing
   1 - Photo

9. COMMENT AND PUBLICATION REFERENCES:

* The USNS ELTANIN, a Military Sea Transport Service Vessel, has been made available to the National Science Foundation for Research Program support purposes. The activity is funded entirely with National Science Foundation funds.

* The ship's professional manpower complement varies with the nature of the program organized for each cruise. All "on-board" researchers are part time, for the duration of the cruise.

The USNS ELTANIN is an ice strengthened ship converted in 1962 for use by the National Science Foundation. It is one of only two ships serving as floating platforms in support of the Antarctic program. It has a displacement of 3886 tons.

Access to the ELTANIN research facilities is by application to the Technical Director for grant support of a proposed research project.

Pub. Refs: 1. Committee on Marine Research Education and Facilities: Oceanographic Ship Operating Schedule. Pub. by National Oceanographic Data Center, Washington, D. C.

2. R. S. ELTANIN, Five-Years of Research. Bulletin. Office of Antarctic Programs, NSF.

10. DATE OF REPORT: October 16, 1969

RESEARCH SHIP HERO
INSTALLATION

NATIONAL SCIENCE FOUNDATION
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☒ CONTRACTOR-OPERATED

C. CONTRACTOR: Tracor - Marine Acoustical Services, Inc.

2. DIRECTOR: Louis O. Quam

A. TECHNICAL DIRECTOR: Louis O. Quam

3. LOCATION: A. Southern Oceans (Nearest City) B. (Antarctic Waters) (County) C. (State)

4. P. O. ADDRESS: ARS HERO, National Science Foundation

A. Washington (City) B. D. C. (State) C. 20550 (Zip Code) D. 202 - 632-4221 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): *

B. ALL OTHER PERSONNEL (Total): 12

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 500,000

B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The function of the ARS HERO is to provide technical support and to serve as a mobile platform for the conduct of basic research in Antarctic and South American waters concerned with Biological and Medical Sciences - Environmental Biology (06-06) Microbiology (06-13) - Earth Sciences and Oceanography - Geography (distribution of plants and animals) (08-06), Geology (08-07), Hydrology (08-08), and Snow, Ice and Permafrost (08-12). Also serves as a mobile platform in Antarctic and South American waters for the collection of marine data and organisms, Earth Sciences and Oceanography - Biological Oceanography and Physical Oceanography (08-01; 08-10).

Research areas receiving major emphasis during FY 1969 included:

Economics surveys of antarctic fishes (05-03)
Physiological studies of vertebrates and invertebrates (06-03)
General marine biology (08-01)
Volcanology (08-07)
Glaciology (08-12)
Structural Geology (08-07)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Side trawling both midwater and benthic
(Isaacs-Kidd, Universal, otter trawls, etc.)

Hydrographic winch

Dredges (epibenthic, anchor, triangular, rock, etc.)

Expendable Bathythermograph

Bow platform for near-surface snaring

Mammal dissecting and deep freeze facility

Refrigerated aquaria

Bottom camera

Scuba air compressor and filtration

Microbiological lab

Long-line winch

Zodiac inflatable boats
for landing parties

9. COMMENT AND PUBLICATION REFERENCES:

* The ship's professional manpower complement varies with the nature of the program designed for each cruise. All "on-board" researchers are part time, for the duration of the cruise. Ten scientists are the ship's normal professional complement which may be increased by four shipboard investigators or ten transient personnel.

Access to the HERO research facilities is by application to the Technical Director for grant support of a proposed research project.

The HERO is a 300 ton, 125 foot, trawler type,diesel-powered but sail-equipped wooden ship; is uniquely designed for acoustic quietness for hydrophonic work; also has a potential for seismic and magnetic studies and possibly coring. The HERO was launched March 28, 1968.

HERO is operated as an adjunct to the U. S. Palmer Station laboratory facility on the Antarctic Peninsula in the austral summer months.

Pub. Refs:1. Committee on Marine Research Education and Facilities: Oceanographic Ship Operating Schedule. Pub. by National Oceanographic Data Center, Washington, D. C.

2. Antarctic Journal of the U. S., Vol.III, No. 3 May - June 1968.

10. DATE OF REPORT: October 16, 1969

Post Office Department

RESEARCH AND DEVELOPMENT LABORATORY
INSTALLATION

POST OFFICE DEPARTMENT
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: H. F. Faught
A. TECHNICAL DIRECTOR: H. F. Faught

3. LOCATION: A. Washington (Nearest City) B. N.W. (County) C. D.C. (State)

4. P. O. ADDRESS: Research and Development Laboratory, Bureau of Research and Eng. P.O. Dept., North Capital and Mass. Ave., N.W.
A. Washington (City) B. D.C. (State) C. 20025 (Zip Code) D. 202-961-7367 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 28
B. ALL OTHER PERSONNEL (Total): 44

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,383,000
B. EXTRAMURAL (Total): $ None*

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts applied research and development into areas peculiar to the processing problems of the Post Office Department. This includes electrical, electronic, mechanical, and fluidic technology and their application to reading, coding, printing, transporting and materials handling operations.

Tests and evaluates new or modified postal equipment, man-machine interface, vehicles, and production pilot models of standard equipment and supplies (05-05 Behavioral and Social Sciences - Human Factors Engineering; 13-06 Mechanical Engineering - Ground Transportation Equipment; 13-08 Industrial Engineering - Industrial Processes).

Provides test facility services for experiments and in defining equipment aspects of new concepts (07-02 Chemistry-Inorganic; 07-03 Chemistry-Organic; 09-05 Electronics and Electrical Engineering-Subsystems; 11-01 Materials - Adhesives and Seals; 11-03 Materials-Coatings, Colorants and Finishes; 11-07 Materials-Miscellaneous; 11-08 Materials-Oils, Lubricants, and Hydraulic Fluids; 11-09 Materials-Plastics; 20-06 Physics-Optics).

Fabricates full-size or scale operating models of mail processing equipment, machines, components and parts and develops instrumentation for testing them. (05-05 Behavioral and Social Sciences - Human Factors; 09-05 Electronics and Electrical Engineering - Subsystems; 13-04 Mechanical Engineering-Containers and Packaging; 13-08 Mechanical Engineering-Industrial Processes; 13-09 Mechanical Engineering-Machinery and Tools).

Application of pattern recognition techniques in the field of optical character recognition. (09-03 Electronic and Electrical Engineering).

A. ADDITIONAL COSATI CODES:

14-02 Methods and Equipment - Test Facilities and Test Equipment

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

The Laboratory has a wide range of environmental test equipment that can test small items used in various postal environments.

Special Equipment: Several types of operational postal equipment are found in the Laboratory. These are used as test beds for checking out field problems and improvements. Included are:

	Processing Rate
1 Cadillac Gauge Model 113 Multi-Position Letter Sorting Machine (LSM)	36,000 letters per hr. to 277 pockets
1 Philoc-Ford Optical Character Reader Prototype Model	Read, scan 36,000 letters per hr.
3 Pitney Bowes MK II Facer Canceler	Face and cancel 30,000 letters per hour each
1 Edger Stacker Model S-89	Edges and stacks 30,000 letters per hour

9. COMMENT AND PUBLICATION REFERENCES:

Ref. "Experimentation for a Better Postal Service" - Pages 23-27, Postmasters Gazette, July 1969, Volume XLVii, Number 7.

Access to the Laboratory should be requested through the Assistant Postmaster General, Bureau of Research and Engineering, U.S. Post Office Department.

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* 6. FUNDING (Approximate FY 1969 Dollar Obligation):

B. Extramural (Total):

Certain research and development projects are contracted out to private industry. These R&D contracts involve laboratory work for the development of optical character readers, fluidic devices, mail processing and material handling equipment. The contract and laboratory work involved are monitored and administered by staff engineering personnel not included in the laboratory complement per se. Estimated FY 1969 total: $12 million.

10. DATE OF REPORT: October 1, 1969

Smithsonian Institution

NATIONAL MUSEUM OF NATURAL HISTORY
INSTALLATION

SMITHSONIAN INSTITUTION
AGENCY OR DEPT.

935

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: R. S. Cowan A. TECHNICAL DIRECTOR: R. S. Cowan

3. LOCATION: A. Washington (Nearest City) B. (County) C. D. C. (State)

4. P. O. ADDRESS: National Museum of Natural History, Smithsonian Institution

A. Washington (City) B. D. C. (State) C. 20560 (Zip Code) D. 202-381-5954 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   - A. R&D PROFESSIONALS (Total): 98
   - B. ALL OTHER PERSONNEL (Total): 140

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   - A. INTRAMURAL (Total): $ 3,600,000
   - B. EXTRAMURAL (Total): $ 950,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The departments of the Museum carry on basic research concerned with the total biology of life on earth and the physical structure of terrestrial and extra-terrestrial rocks and minerals, as follows:

(1) The Systematic Biologists study the diversity of life from the standpoint of evolutionary history.

(2) The Entomologists depend on morphological and anatomical data sources for descriptive studies of the world insect fauna (06-03; 06-06; 08-06).

(3) The Invertebrate Zoologists are concerned primarily with aquatic invertebrates, especially those of the marine environment, (06-01; 06-03; 06-06; 06-13; 08-01; 08-06; 08-08).

(4) The Vertebrate Zoologists' research is directed toward monographic treatments of fishes, amphibians, reptiles, birds and mammals (06-03; 06-06; 08-01; 08-06).

(5) The Botanists make taxonomic investigations on flowering plants, mosses, lichens and ferns of the world, but with particular emphasis on those of the New World (06-01; 06-03; 06-06; 06-13, 08-01).

(6) The Paleobiology research is aimed at an understanding of physical (sedimentary) and biological environments (06-03; 06-06; 06-13; 08-01; 08-04; 08-06; 08-07; 08-10).

(7) The Anthropologists' research involves archeology, ethnology, linguistics, and physical anthropology in its concern with man as a physical animal, as a social creature, and as a cultural innovator (05-06; 05-07; 05-11; 06-06; 06-16).

(8) The Mineral Scientists' research is concerned with petrology, volcanology, and extraterrestrial materials such as meteorites, tektites, and lunar samples. (03-02; 07-02; 07-04; 08-04; 08-07; 08-10; 20-02).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Conventional equipment required for support of study programs.
Also,
    Conservation Laboratory for Anthropological Artifacts
    Vertebrate Fossil Preparation Laboratory
    Petrology Chemical Laboratory
    Anatomical X-ray Laboratories
    Rock-sectioning Laboratory
    Wood Anatomy Laboratory
    Human Relation Area Files (only set in the Washington area)
    National Anthropological Archives
    Comprehensive Anthropology Library.

9. COMMENT AND PUBLICATION REFERENCES:

The National Collections of natural history objects is a unique facility for the research use of the staff and scientists over the world. Specimens of plants, animals, rocks, fossils, gems, and man-related artifacts now total well over fifty million items. The scientific and technical staffs are responsible for the building and maintenance of the Collections for their own use as well as to make the specimens and associated data available for study by the world science community. Data-processing techniques are being applied for the storage and retrieval of systematic, environmental, and geographic information.

The Museum employs the largest group in the country of scientists concerned with systematic biology and it is the only federally-supported unit without an agency mission other than to develop basic information about living and fossil plants and animals and their interactions in/with the total environment.

Although administratively separate from the Museum, the Office of Oceanography and Limnology maintains liaison with scientists to collect biological materials, and operates the Smithsonian Oceanographic Sorting Center (SOSC) for marine biological and geological materials. The SOSC is a unique facility for making biological materials available for study by specialists over the world. Collections from marine expeditions are received by the SOSC, sorted to family or other appropriate level, and shipped to specialists selected by an advisory committee.

Several hundred research papers are published annually in one or another of the Smithsonian Institution publications, in external professional journals, and as books by commercial publishers.

10. DATE OF REPORT:
February 1970

Radiation Biology Laboratory — INSTALLATION
Smithsonian Institution — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: William H. Klein
   A. TECHNICAL DIRECTOR: William H. Klein

3. LOCATION: A. Rockville, (Nearest City) B. Montgomery (County) C. Maryland (State)

4. P. O. ADDRESS: Radiation Biology Laboratory, 12441 Parklawn Drive
   A. Rockville (City) B. Md. (State) C. 20852 (Zip Code) D. 301/443-2306 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 8
   B. ALL OTHER PERSONNEL (Total): 28

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 500,000
   B. EXTRAMURAL (Total): $ 50,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Radiation Biology Laboratory conducts basic research on the interaction of the environment with living forms. This research is part of the Smithsonian's overall objective of improving the quality of man's environment through the acquisition of new knowledge of the environment as it relates to the development of flora and fauna, to the evolution of species, and finally, the development of human culture. RBL activities are primarily in the areas of plant physiology, regulatory biology, biophysics, solar radiation, and carbon dating. Research programs seek to identify the mechanisms by which living systems respond to nonionizing and ionizing radiation. Since solar radiation is the primary source of energy for all life, emphasis has been placed on the elucidation of the role of visible and near visible light as a source of energy for biochemical synthesis and regulatory stimuli. More specifically, problems currently under investigation are:

1. Biochemistry of plant pigment systems (06-01; 07-04; 07-05).
2. Biosynthesis of plant proteins (06-01; 07-04; 07-05).
3. Biophysics of phototropic and photoperiodic responses of plants (06-18).
4. Phenology and Plant Physiology (06-03).
5. Cell Biology and Ultrastructure (06-03; 08-01).
6. Environmental Biology (06-06).
7. Solar Radiation and Solar Tracking (03-02 and 06-06).
8. Genetics of photoperiodism in higher plants (06-03).
9. Chromatid Aberrations: Red/Far-red interactions with X-ray and ultraviolet light (06-18).
10. Earth Science and History in relation to changing human cultures of the Eastern U.S.A. (05; 06; 07; 08).

A. ADDITIONAL COSATI CODES:

05-02; 05-11; 08-04; 08-08; 14-02; 20-06.

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Laboratory is equipped with specialized instrumentation for biochemical, biophysical and physiological research.

Specialized equipment:

1. Environmental control rooms and greenhouse: maintains uniformity or controls major environmental factors for plant growth: light, temperature, nutrients.
2. Solar radiation measurement: detectors and acquisition system for broad band spectral quality measurements of short wave solar radiation, calibration facilities.
3. Carbon dating facility.

9. COMMENT AND PUBLICATION REFERENCES:

SRBL has developed specialized equipment and facilities which bestow unique capabilities for undertaking fundamental, interdisciplinary studies in photobiology. This Bureau has pioneered in the development of environmental control chambers producing constant specific wavelengths of light, temperature, humdity, and nutrition for growth of algae, fungi, and higher plants. With the advent of successful methods for the isolation, purification, and molecular identification of plant pigment systems, it will be possible to more accurately describe how living plants absorb radiant energy, convert it to potential chemical energy, and then utilize this energy for growth and seed production. The outcome of this work will have a great deal to do with the quality and quantity of food available to man.

Since 1968, automatic and continuous measurements (from sunrise to sunset) of total solar energy (at 100 nm intervals through the UV visible and far-red region) have been made at two solar tracking stations (Washington, D. C. and Israel).

In addition, SRBL cooperates with several universities (Eastern U.S.A.) on the development of new and improved techniques for understanding the human cultural changes in relation to regional environments over geological time.

This Bureau (SRBL) supports a high level of academic activity through visiting postdoctoral research associates and visiting research associates (i.e. Ph.D. candidates). In addition to these academic activities, timely lectures and seminars are presented regularly to the staff scientists.

10. DATE OF REPORT: February 1970

Smithsonian Astrophysical Observatory — INSTALLATION
Smithsonian Institution — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Dr. Fred L. Whipple
   A. TECHNICAL DIRECTOR: (same as director)

3. LOCATION: A. Cambridge *(Nearest City)* B. *(County)* C. Mass. *(State)*

4. P. O. ADDRESS: 60 Garden Street
   A. Cambridge *(City)* B. Mass. *(State)* C. 02138 *(Zip Code)* D. 617-864-7910 *(Telephone (Area Code & No.)*

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 80
   B. ALL OTHER PERSONNEL (Total): 420

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 8,437,000.00
   B. EXTRAMURAL (Total): $ 500,000.00

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Smithsonian Astrophysical Observatory (SAO) is a Bureau of the Smithsonian Institution (SI) and conducts basic research in eight broad areas of Astronomy and Astrophysics, as follows: (code 03-02)

1. Radioastronomy
2. Gamma-ray Astronomy
3. Meteorites and Cosmic Dust
4. Stellar Physics
5. Optical Astronomy
6. Atomic & Molecular Astrophysics
7. Lunar and Planetary Science
8. Meteors and Comets

The above studies, in turn, are complemented by programs of the Mineral Sciences Department of the Museum of Natural History. Together, these activities provide a closely integrated research effort in space/earth sciences within SI, which insures a healthy balance between science inside and outside the federal structure. For example, SAO shares quarters with, and conducts joint research in radioastronomy with the Harvard College Observatory (Cambridge, Mass).

New programs now a part of SAO's diversified research activities are as follows:

(1) Flight experimentation (20,22).
(2) Hydrogen-maser clock (20).
(3) Satellite experiments to measure gravitational redshift (03;22).

Observational data are provided by both ground-based and space-qualified systems for use in tracking satellites (laser-gamma system at Mt. Hopkins in Arizona) (22), and in detecting secondary atmospheric particles generated by gamma rays (03,04). State-of-the-art techniques in optics, electronics, and mechanics are used.

A. ADDITIONAL COSATI CODES:
03-03; 04-01; 05-02; 08-03; 08-04; 08-05; 08-07; 20-03; 20-05; 20-06; 20-08; 20-14; 22-01.

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

1. A CDC 6400 computer and associated peripheral equipment.
2. An international network of Baker-Nunn cameras and associated timing electronics and communications facilities.
3. An international network of laser satellite-tracking systems.
4. An automated network of meteor cameras in 7 states in mid-western U.S.A.
5. A computerized meteor radar system.
6. A 60-inch optical telescope (under construction).
7. A 10-meter light collector and associated electronic detectors and processors.
8. Miscellaneous optical, UV, and gamma-ray observing systems.
9. Miscellaneous laboratory equipment and systems including X-ray probes, a mass spectrography, and several hydrogen-maser oscillators.

9. COMMENT AND PUBLICATION REFERENCES:

SAO may be viewed as "the national astrophysical observatory," and virtually unique in its ability to conduct pioneering research in space-earth science. Since the advent of laser tracking systems in 1966, the possibility of improving the accuracy of geophysical research has emerged, serving to strengthen studies of continental draft, earth tides, and ocean profiles. Advances in gamma ray astronomy have been achieved by use of SAO's 10 meter optical reflector for detecting secondary atmospheric particles generated by gamma rays. Since 1968, an SAO-designated telescope-television system (Celescope) has made valuable observations of celestial objects in ultraviolet light. Perfection of the new hydrogen-maser clock will provide a new satellite experiment to measure gravitational redshift.

SAO operates, as a service to the scientific community, two international information bureaus as follows:

(1) Central Bureau for Satellite Geodesy (05-02).
(2) Central Bureau for Astronomical Telegrams (05-02).

The headquarters of the Center for Short-Lived Phenomena of the Smithsonian Institution (03) is located at SAO, Cambridge, Massachusetts.

Publication References: Apply to SAO, Cambridge, Mass.

10. DATE OF REPORT: February 1970.

SMITHSONIAN TROPICAL RESEARCH INSTITUTE
INSTALLATION

SMITHSONIAN INSTITUTION
AGENCY OR DEPT.

941

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Martin H. Moynihan
A. TECHNICAL DIRECTOR: Martin H. Moynihan

3. LOCATION: A. Panama City (Nearest City) B. Panama (County) C. Republic of Panama (State)

4. P. O. ADDRESS: Box 2072
A. Balboa (City) B. Canal Zone (State) C. None (Zip Code) D. Balboa 2-2485 or Panama City 22-0211 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 9
B. ALL OTHER PERSONNEL (Total): 31

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 460,000
B. EXTRAMURAL (Total): $ 10,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

STRI conducts basic research in six broad areas which focus on the evolution of patterns of behavior and ecological adaptations among primates, insects, fishes, birds, and higher plants, as follows:

(1) Relationships among species diversity, evolutionary "success," and the origin of novelties (06-03).
(2) Communication systems (animal), interspecific relations, and environmental correlates (05-10; 06-03; 06-06; 08-01).
(3) Biogeography and the evolution of isolating mechanisms (06-03).
(4) Ecological adaptations and the evolution of social behavior (05-10; 06-06).
(5) Pre-predator co-adaptations (06-03; 06-06).
(6) Mathematical theories of community ecology (06-03).

The above areas of basic study represent a part of the ecosystem science program of SI aimed at understanding the evolution of terrestrial and marine organisms.

Living systems being studied actively include primates and other mammals; butterflies and tropical plants in swamps, grasslands, cloud forests, rocky shores, sandy beaches and offshore islands.

A. ADDITIONAL COSATI CODES:
05-02; 06-13; 08-06; 08-10.

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

- Ten square mile tropicam monsoon rain forest preserve with dry labs, training facilities and quarters, Barro Colorado Island (Intermediate).

- Two-mile long coral reef preserve, Galeta Island (Atlantic).

- Tropical high altitude Andean sub-station, Cali, West Central Colombia (South America).

- Central laboratories, training center, 10,000 volume library, Ancon (Canal Zone).

- Naos Island Marine laboratory equipped with 200 feet of aquaria, continuous sea-water systems, six research tanks ranging from 33,000 to 67,000 gallon capacity, technical support labs, 10,000 sq. foot research pier, is located on the Pacific coast of Panama, Galeta Island is on the Atlantic Coast.

9. COMMENT AND PUBLICATION REFERENCES:

STRI facilities afford a unique opportunity to conduct basic research on living systems in their natural state by virtue of the availability of an undisturbed tropical ecosystem at Barro Island in Gatun Lake where essentially simultaneous comparative studies of both the Atlantic and Pacific Oceans can be made. Additional ecosystems are available as contiguous mud flats, offshore islands, beaches, atolls, and reefs.

The Tropical Research Institute programs focus on the evolution of patterns of behavior and ecological adaptations among primates, insects, fishes, birds, and higher plants. The tropics, as a whole, offer the richest natural laboratory for these purposes.

STRI supports a high level of academic activity through the Smithsonian Fellowships Program, and in cooperation with the Organization of American States (OAS) provides support for Latin Americans who do not have access to many other sources of support.

All programs conducted on STRI facilities are coordinated by STRI from its headquarters in Panama City, Canal Zone.

For additional information, consult the following publications:

(1) Smithsonian Annual Reports, 1966, 1967, 1968, and 1969.

(2) Smithsonian Institution Research Opportunities, 1970-1971.

10. DATE OF REPORT: February 1970

Tennessee Valley Authority

CENTRAL LABORATORIES
INSTALLATION

TENNESSEE VALLEY AUTHORITY
AGENCY OR DEPT

945

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Godwin Williams, Jr. A. TECHNICAL DIRECTOR: C. Ray Goodroe

3. LOCATION: A. Chattanooga (Nearest City) B. Hamilton (County) C. Tennessee (State)

4. P. O. ADDRESS: Central Laboratories, PSC-1, Tennessee Valley Authority

A. Chattanooga (City) B. Tennessee (State) C. 37401 (Zip Code) D. 625-755-2736 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 17 (part-time)
B. ALL OTHER PERSONNEL (Total): 37

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 258,061
B. EXTRAMURAL (Total): $ None

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Develop means of making phase-angle comparisons at opposite ends of long transmission lines (09-03, 09-06 Electronic and Electrical Engineering - Telemetering).

Develop spike minimizer for 18- to 30-Hertz telemetering system (09-03, 09-06 Electronic and Electrical Engineering - Telemetering).

Apply ferrite materials to primary, secondary, and control circuits for the absorption of high-frequency surges which result from disconnect switch operations (09-03 Electronic and Electrical Engineering).

Develop a low-cost instrument for accurate reading and setting of frequency and deviation of radio transmitters and receivers (09-03, 17-02.1 Electronic and Electrical Engineering - Radio Communications).

Miniaturize instrumentation for the detection of damaging corona in organic electrical insulation (09-03 Electronic and Electrical Engineering).

Improve oxidation test for electrical insulating oil. This is a cooperative activity with other ASTM members (07-03 Organic Chemistry).

Develop chemical test methods and analytical procedures to be used in TVA's experimental program of SO_2 removal from steam plant flue gas. This program is under the general sponsorship of the U.S. Department of Health, Education, and Welfare (07-03 Physical Chemistry).

Develop methods to identify, treat, and control biological growths in petroleum oil storage tanks (06-01 Biochemistry).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

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8. MAJOR EQUIPMENT:

Beckman model DU spectrophotometer and model IR-4 infrared spectrophotometer.

Gas chromatograph.

Wenner potentiometer; Mueller bridge K-3 potentiometer; platinum and platinium/rhodium NBS-certified standard thermocouples; low-temperature oil bath; Leeds and Northrup thermocouple calibrating furnace, 300° to 1800° F.

Special equipment for testing variety of devices in high-current electrical field.

9. COMMENT AND PUBLICATION REFERENCES:

10. DATE OF REPORT: October 7, 1969

Engineering Laboratory
INSTALLATION

Tennessee Valley Authority
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Rex A. Elder
A. TECHNICAL DIRECTOR: Rex A. Elder

3. LOCATION: A. Norris (Nearest City) B. Anderson (County) C. Tennessee (State)

4. P. O. ADDRESS: Engineering Laboratory, Tennessee Valley Authority, P. O. Drawer E
A. Norris (City) B. Tennessee (State) C. 37828 (Zip Code) D. 615-522-7181 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 21
B. ALL OTHER PERSONNEL (Total): 50

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,313,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts diversified engineering research and testing in the fields of water and gas flow for the design and operation of dams, locks, and steam plants; develops electronic equipment and techniques for hydraulic studies and for transmitting hydraulic data.

Thermo-hydrodynamics of stratified flows (04-02 Atmospheric Sciences - Meteorology; 08-08 Earth Sciences and Oceanography - Hydrology and Limnology; 18-02 Nuclear Science and Technology - Isotopes - Industrial Application; 20-04 Physics - Fluid Mechanics; 20-13 Physics - Thermodynamics),

Engineering aspects of water quality (08-08 Earth Sciences and Oceanography - Hydrology and Limnology; 13-02 Civil Engineering; 13-13 Structural Engineering),

Vibrations of structures (13-07 Hydraulic and Pneumatic Equipment; 13-09 Machinery and Tools; 20-11 Physics - Solid Mechanics),

Control of heated discharges into streams and reservoirs (13-02 Civil Engineering; 20-04 Physics - Fluid Mechanics; 13-13 Structural Engineering),

Low-speed air and gas dynamics (13-01 Air Conditioning, Heating, Lighting, and Ventilating; 20-04 Physics - Fluid Mechanics),

Development of instrumentation systems for gathering and processing basic engineering research data on air quality, water quality, and general Civil and Mechanical Engineering Laboratory and field studies (08-08 Earth Sciences and Oceanography - Hydrology and Limnology; 09-03 Electronics and Electrical Engineering; 09-06 Telemetry; 17-02.1 Radio Communications; 18-04 Nuclear Instrumentation; 04-02 Atmospheric Sciences - Meteorology).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

948

8. MAJOR EQUIPMENT:

The Engineering Laboratory has standard equipment necessary for its mission.

9. COMMENT AND PUBLICATION REFERENCES:

10. DATE OF REPORT: October 22, 1969

ENVIRONMENTAL BIOLOGY LABORATORY
INSTALLATION

TENNESSEE VALLEY AUTHORITY
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: Dr. G. E. Smith
   A. TECHNICAL DIRECTOR: Dr. G. E. Smith

3. LOCATION: A. Muscle Shoals (Nearest City) B. Colbert (County) C. Alabama (State)

4. P. O. ADDRESS: Environmental Biology Lab., Tennessee Valley Authority, E&D Building
   A. Muscle Shoals (City) B. Alabama (State) C. 35660 (Zip Code) D. 205-383-4728 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 4
   B. ALL OTHER PERSONNEL (Total): 2

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 98,000
   B. EXTRAMURAL (Total): $ 3,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts biological studies in support of vector and aquatic weed control in manmade reservoirs and to determine the impact of air pollution on biological processes of plants and trees.

Embryogenesis of floodwater mosquitoes (06-03 Biological and Medical Sciences - Biology),

Mosquito control by habitat management (06-06 Biological and Medical Sciences - Environmental Biology),

Bioassays to evaluate specific larvicides in control of anopheline mosquitoes (06-06 Biological and Medical Sciences - Environmental Biology),

Study of physiology of Eurasian watermilfoil dealing with photosynthesis and photorespiration (06-06 Biological and Medical Sciences - Environmental Biology),

Effectiveness of flea beetle as biological control agent of alligatorweed (06-06 Biological and Medical Sciences - Environmental Biology),

Biological studies of effect of SO_2 emissions on terrestrial ecosystem (06-06 Biological and Medical Sciences - Environmental Biology).

Studies to evaluate and monitor the effects of industrial, domestic, and agricultural wastes disposal on the biological productivity of receiving waters (06-06 Biological and Medical Sciences - Environmental Biology).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

950

8. MAJOR EQUIPMENT:

The Environmental Biology Laboratory has a variety of standard equipment necessary to the operation of a facility with its mission.

9. COMMENT AND PUBLICATION REFERENCES:

10. DATE OF REPORT: October 22, 1969

Forestry and Fisheries Laboratory
INSTALLATION

Tennessee Valley Authority
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Kenneth J. Seigworth
A. TECHNICAL DIRECTOR: Forestry: Robert E. Farmer, Fisheries: Ben D. Jaco

3. LOCATION: A. Norris (Nearest City) B. Anderson (County) C. Tennessee (State)

4. P. O. ADDRESS: Forestry and Fisheries Laboratory, Tennessee Valley Authority
A. Norris (City) B. Tennessee (State) C. 37828 (Zip Code) D. 615-494-7173 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 5
B. ALL OTHER PERSONNEL (Total): 7

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 65,000*
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts research on forest tree genetics, plant physiology, ecology, and chemical processes in plant biological systems; develops methods of strip mine reclamation through establishment of vegetative cover; research on ecological factors in production of freshwater fish, mussels, and other aquatic fauna; research on biological conditions in freshwater systems.

Flowering and vegetative propagation of black cherry (06-03 Biological and Medical Sciences - Biology),

Crossbreeding of oaks (06-03 Biological and Medical Sciences - Biology),

Pollination control in hardwood seed orchards (06-03 Biological and Medical Sciences - Biology),

Seed and plant physiology (02-06 Agriculture - Forestry - Development and Cultivation of Forests; 06-03 Biological and Medical Sciences - Biology),

Fish guiding systems to improve commercial fish harvest (06-06 Biological and Medical Sciences--Environmental Biology - Ecology),

Life history studies of pigtoe mussel (06-06 Biological and Medical Sciences - Environmental Biology - Ecology),

Study of trout spawning in Norris Reservoir tributary streams (06-06 Biological and Medical Sciences - Environmental Biology - Ecology).

A. ADDITIONAL COSATI CODES: 06-01 - Biological and Medical Sciences - Biochemistry
08-08 - Earth Sciences and Oceanography - Hydrology and Limnology - Biological Conditions.

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

952 8. MAJOR EQUIPMENT:

The Forestry and Fisheries Laboratory has standard equipment for a laboratory with the mission described above.

9. COMMENT AND PUBLICATION REFERENCES:

*This is a new laboratory, in use during part of the year only.

10. DATE OF REPORT: October 22, 1969

INDUSTRIAL HYGIENE AND AIR QUALITY LABORATORY
INSTALLATION

TENNESSEE VALLEY AUTHORITY
AGENCY OR DEPT.

953

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   - A. R&D LABORATORY
     - (1) ☒ GOVERNMENT-OPERATED
     - (2) ☐ FFRDC
     - (3) ☐ CONTRACTOR-OPERATED
   - B. SUBSIDIARY R&D ORGANIZATION
     - (1) ☐ GOVERNMENT-OPERATED
     - (2) ☐ CONTRACTOR-OPERATED
   - C. CONTRACTOR:

2. DIRECTOR: F. W. Thomas
   A. TECHNICAL DIRECTOR: F. W. Thomas

3. LOCATION: A. Muscle Shoals (Nearest City) B. Colbert (County) C. Alabama (State)

4. P. O. ADDRESS: Industrial Hygiene and Air Quality Laboratory, River Oaks Building
   A. Muscle Shoals (City) B. Alabama (State) C. 35660 (Zip Code) D. 205-383-4575 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 3
   B. ALL OTHER PERSONNEL (Total): 2

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 103,000
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Provides analyses of a wide range of field samples for appraisal of air quality in the vicinity of TVA coal-fired steam plant and fertilizer plant operations (13-02 Mechanical, Industrial, Civil, and Marine Engineering - Civil Engineering - Air Pollution Control).

Makes analyses of blood and urine samples of employees exposed to special work hazards (06-10 Biological and Medical Sciences - Industrial (Occupational) Medicine- Interaction of man and industrial environment).

Makes analyses of industrial hygiene samples to appraise the quality of working environment throughout TVA operations (06-10 Biological and Medical Sciences - Industrial (Occupational) Medicine - work environmental quality).

Tests, evaluates and calibrates special industrial hygiene and air pollution instruments (13-02 Mechanical, Industrial, Civil, and Marine Engineering - Civil Engineering - air pollution control).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

The laboratory has standard equipment which includes the following major items: UV-visible spectrophotometer, gas chromatograph (thermal detector), microscope with phase contrast, ozone meter, abbe refractometer, atomic absorption spectrophotometer, and balances.

9. COMMENT AND PUBLICATION REFERENCES:

10. DATE OF REPORT: October 7, 1969

MATERIALS ENGINEERING LABORATORY
INSTALLATION

TENNESSEE VALLEY AUTHORITY
AGENCY OR DEPT.

955

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: J. C. McCraw
   A. TECHNICAL DIRECTOR: Ralph O. Lane

3. LOCATION: A. Knoxville (Nearest City) B. Blount (County) C. Tennessee (State)

4. P. O. ADDRESS: Materials Engineering Laboratory, Tennessee Valley Authority
   A. Knoxville (City) B. Tennessee (State) C. 37902 (Zip Code) D. 625-577-7572 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 3
   B. ALL OTHER PERSONNEL (Total): 17

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 50,000.00
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

As the principal laboratory facility in materials engineering of the Tennessee Valley Authority, this laboratory is engaged in research studies and engineering investigations in soil mechanics, concrete, bituminous materials, and paint.

On a broader scale, it conducts concrete mix design programs and soils and foundation investigations. Paints and protective coatings are subject to performance and acceptance testing.

Soils Research

Comparison of in-situ vane shear strength of a saturated clay with that determined from the conventional triaxial Q test and the "perfect sampling" (CA-UU) test. (08-13 Earth Sciences and Oceanography - Soil Mechanics - Shear Strength).

Effect of varying mica contents on engineering properties of low plasticity soils. (08-13 - Earth Sciences and Oceanography - Soil Mechanics - Evaluation of Construction Materials).

Comparison of conventional consolidation test parameters with those obtained from a backpressure-consolidometer-permeameter. (08-13 - Earth Sciences and Oceanography - Soil Mechanics - Consolidation and Permeability).

Fly ash characteristics and strength contribution in concrete and volume changes in premixed grout (13-03 - Civil Engineering - Construction Materials - Concrete).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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956

8. MAJOR EQUIPMENT:

A full range of equipment for conventional concrete, soil, paint, and asphalt testing and some specialized equipment for application to particular problems is available.

9. COMMENT AND PUBLICATION REFERENCES:

10. DATE OF REPORT: October 7, 1969

National Fertilizer Development Center
INSTALLATION

Tennessee Valley Authority
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Lewis B. Nelson
A. TECHNICAL DIRECTOR: Dr. Lewis B. Nelson

3. LOCATION: A. Muscle Shoals (Nearest City) B. Colbert (County) C. Alabama (State)

4. P. O. ADDRESS: National Fertilizer Development Center, Tennessee Valley Authority

A. Muscle Shoals (City) B. Alabama (State) C. 35660 (Zip Code) D. 205-383-4631 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 129
B. ALL OTHER PERSONNEL (Total): 99

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 4,157,000
B. EXTRAMURAL (Total): $ 116,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts chemical and agronomic research and chemical engineering development for new and improved fertilizers, more efficient processes for their manufacture, and more efficient fertilizer use so as to reduce their cost to farmers. Upon request by the Secretary of Defense, conducts munitions research and development.

Formation of nitrogen and phosphorus compounds and their behavior in the soil (07-04 Chemistry - Physical)

Utilization of nutrients by growing plants (02-01; 02-04; 02-06 Agriculture - Agricultural Chemistry - Agronomy and Horticulture; Forestry,Fertilizers).

Recovery of nutrients from plant wastes; recovery of sulfur from power plant stack gases (07-04 Chemistry - Physical Chemistry)

Production of wet-process phosphoric acid (07-01 Chemistry - Chemical Engineering - Chemical manufacturing)

Oil drilling of fertilizers (07-01 Chemistry - Chemical Engineering - Techniques)

Urea-ammonium phosphate processes (07-01; 07-02; 07-04 Chemistry - Chemical Engineering - Inorganic - Physical - Processes, Crystal growth)

Fertilizer losses in runoff and ground water (02-01; 02-04 Agriculture - Agricultural Chemistry - Agronomy and Horticulture)

A. ADDITIONAL COSATI CODES:

06-06, Bio. & Med. Sci.-Envir. Bio.	19-01, Ordnance - Ammo.,Explosive & Pyrotech.
07-05, Chem. - Radio & Radiation	20-02, Physics - Crystallography

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

The National Fertilizer Development Center has a wide range of equipment and facilities required for fertilizer research and development and for agronomic research.

Special Equipment:

1. Nuclear Magnetic Resonance Spectrometer: Varian Associates, Model DA-60-I modified for high resolution of solids,
2. Electron Microscope: Hitachi, HU-11-B, 250,000x,
3. Infrared Spectrophotometer: Perkin-Elmer, Model 521,
4. Thermogravimetric Analysis Apparatus: Amer. Instrument Co., No. 4-4481,
5. Differential Thermal Analysis Apparatus: Robert L. Stone Co., Model 12-B.

9. COMMENT AND PUBLICATION REFERENCES:

10. DATE OF REPORT: October 22, 1969

RADIOLOGICAL HYGIENE LABORATORY
INSTALLATION

TENNESSEE VALLEY AUTHORITY
AGENCY OR DEPT

959

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: James A. Oppold
A. TECHNICAL DIRECTOR: James A. Oppold

3. LOCATION: A. Muscle Shoals (Nearest City) B. Colbert (County) C. Alabama (State)

4. P. O. ADDRESS: Radiological Hygiene Laboratory, River Oaks Building
A. Muscle Shoals (City) B. Alabama (State) C. 35660 (Zip Code) D. 205-383-4575 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 2
B. ALL OTHER PERSONNEL (Total): 3

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 96,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Provides radiological analyses in support of environmental surveys of TVA's nuclear power plants presently under construction, fertilizer operations, coal-fired steam plant operations, and other activities of TVA involving radioactive materials (06-18 Radiobiology - Dosimetry, health physics, radiation injury).

Calibrates and maintains portable radiation monitoring equipment (06-18 Radiobiology - Dosimetry).

Develops and reads personnel monitoring film for TVA activities (06-18 Radiobiology - health physics).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

The laboratory has the following major equipment.

1. Low-background counting system to measure low-level radioactivity in samples.
2. Gas proportional counter to measure low-level radioactivity in samples.
3. Geiger-Mueller counting systems (2) to measure low and intermediate radioactivity levels.
4. Liquid scintillation counting system to measure carbon-14, phosphorous-32, and tritium content of water samples.
5. Furnace to ash large volume samples.
6. Thermoluminescent dosimeter reader to measure background radiation.
7. Film Densitometer to measure opacity of the film used in personnel radiation monitoring.
8. Pulse height analyzer system to measure and record gamma radiation spectrums in samples.

9. COMMENT AND PUBLICATION REFERENCES:

10. DATE OF REPORT: October 7, 1969

WATER QUALITY LABORATORY
INSTALLATION

TENNESSEE VALLEY AUTHORITY
AGENCY OR DEPT.

961

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: M. A. Churchill
A. TECHNICAL DIRECTOR: M. A. Churchill

3. LOCATION: A. Chattanooga (Nearest City) B. Hamilton (County) C. Tennessee (State)

4. P. O. ADDRESS: Water Quality Laboratory, 1001 Columbia Street
A. Chattanooga (City) B. Tennessee (State) C. 37401 (Zip Code) D. 615-755-2981 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 8
B. ALL OTHER PERSONNEL (Total): 11

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 252,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Performs bacteriological, chemical and radiological determinations on water quality samples of waters of the Tennessee River basin in support of TVA's water quality management program (13-02 Mechanical, Industrial, Civil, and Marine Engineering - Civil Engineering - water pollution control).

Conducts research needed to support laboratory operations (13-02 Mechanical, Industrial, Civil, and Marine Engineering - Civil Engineering - water pollution control).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

The water quality installation is an analytical laboratory and as such has general equipment to perform determinations of most water quality parameters. Major equipment includes spectrophotometers (UV-visible, flame emission, atomic absorption), semi-automatic colorimeters, polarographs, low-background alpha and beta counter, gas chromatograph, organic carbon analyzer, and air and water incubators.

9. COMMENT AND PUBLICATION REFERENCES:

Reference: 1. Digest of Technical Facilities and Capabilities, Inter-Service Committee on Technical Facilities, Southeastern USA, January 1963.

10. DATE OF REPORT: October 7, 1969

Department of Transportation

ELECTRONICS ENGINEERING CENTER
INSTALLATION

TRANSPORTATION (USCG)
AGENCY OR DEPT.

965

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ ONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: CDR J. F. Culbertson
A. TECHNICAL DIRECTOR: CDR J. F. Culbertson

3. LOCATION: A. Wildwood (Nearest City) B. Cape May (County) C. New Jersey (State)

4. P. O. ADDRESS: Commanding Officer, USCG Electronics Engineering Center
A. Wildwood (City) B. New Jersey (State) C. 08260 (Zip Code) D. 609-522-7781 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 11
B. ALL OTHER PERSONNEL (Total): 63

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 909,000
B. EXTRAMURAL (Total): $ – –

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Coast Guard Electronics Engineering Center Laboratory exists solely to support the Electronic Aids to Navigation Plant of the Coast Guard and is not considered to be an R & D Laboratory. Assigned projects include evaluating prototype and commercial Electronic Aids to Navigation equipment; developing and evaluating field changes to plant equipment; designing prototypes of Aids to Navigation equipment for in-house or contractor construction; designing and/or evaluating full scale antennas; testing and evaluating requiring initial overwater or underwater propagation; evaluating antenna models for Aids to Navigation equipment; furnishing engineering services to field units; repairing Loran-C receivers and evaluating Beneficial Suggestions and Technical Manuals for Aids to Navigation equipment. Aids to Navigation equipment includes Loran, Radiobeacon, Radar, Underwater Sound, Ratan, Microwave Peloris Range and Talking Beacons.

Codes 17-03
17-07
17-09

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

A wide range of electronic test equipment for accomplishment of the testing, evaluation and engineering development described in paragraph 7.

9. COMMENT AND PUBLICATION REFERENCES:

Service to Other Agencies: Limited services are available to other government agencies on a not to interfere basis. To determine the availability of this facility to accomplish outside work, write or telephone:

Chief, Electronics Engineering Division
U. S. Coast Guard Headquarters
400 Seventh Street, S. W.
Washington, D. C. 20591

Telephone: 202-962-7510

10. DATE OF REPORT: February 1970

FIELD TESTING & DEVELOPMENT CENTER — INSTALLATION

TRANSPORTATION (USCG) — AGENCY OR DEPT.

967

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: CDR J.M. O'Connell (see item 9) A. TECHNICAL DIRECTOR: CDR J. M. O'Connell

3. LOCATION: A. Baltimore (Nearest City) B. (County) C. Maryland (State)

4. P. O. ADDRESS: U. S. Coast Guard Yard, Building 27

A. Baltimore (City) B. Md. (State) C. 21226 (Zip Code) D. 301-789-6433 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 7
B. ALL OTHER PERSONNEL (Total): 16

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 288,000
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

This facility provides in-house capabilities for evaluation of prototype components and systems developed under projects administered either by the facility or by the Coast Guard Office of Research and Development. Research efforts have been largely in the field of optics and acoustics, including evaluation under controlled laboratory conditions of experimental prototypes, materials and techniques, as well as in situ testing and data gathering. FTDC provides in-house capabilities for evaluation of prototype components and systems developed under projects administered by other divisions within the Office, or administered fully by the Facility. Being geographically located within the Coast Guard Yard facilitates the construction and/or modification of prototypes developed by FTDC, and the fabrication of special purpose equipment for evaluation of contractor developed prototypes. Code 17-07

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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968 8. MAJOR EQUIPMENT:

General purpose test equipment and instrumentation, and special purpose optical and acoustical test instruments which includes integrating spheres, photometers and anechoic chamber.

9. COMMENT AND PUBLICATION REFERENCES:

The contact to determine the availability of this facility to accomplish outside work write or telephone to:

Chief, Office of Research and Development
Coast Guard Headquarters
1300 E. Street, N.W.
Washington, D.C. 20591
Telephone 202-964-4722

10. DATE OF REPORT:

OCEANOGRAPHIC UNIT — INSTALLATION

TRANSPORATION (USCG) — AGENCY OR DEPT.

969

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: *

A. TECHNICAL DIRECTOR: Dr. Merton C. Ingham

3. LOCATION: A. Washington (Nearest City) B. (County) C. D. C. (State)

4. P. O. ADDRESS: Building 159E, Washington Navy Yard

A. Washington (City) B. D.C. (State) C. 20390 (Zip Code) D. 202-962-4966 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 19

B. ALL OTHER PERSONNEL (Total): 43

6. FUNDING (Approximate FY 1969 Dollar Obligations): **

A. INTRAMURAL (Total): $ 750,000

B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The mission of the Coast Guard Oceanographic Unit is "To exercise cognizance over the Coast Guard Oceanographic Program including data collection, processing and dissemination; instrument development and calibration; oceanographic techniques and procedures; and liaison and cooperation with other agencies. To conduct oceanographic research in support of Coast Guard statutory functions and in furtherance of the national oceanographic effort."

Biological Oceanography (08-01), a tangential program where principal concern is in relating biological tracers to circulation phenomenon and water mass analysis. Programs are generally conducted in cooperation with agencies (i.e., BCF, Smithsonian) or research institutions (i.e., Lamont, Scripps, WHOI)

Cartography (08-02), preparing operational charts, in support of on-going programs, for certain specialized areas (i.e., Grand Banks of Newfoundland, East Coast of Greenland, Chukchi Sea).Long term cartography requirements are contracted to ESSA or Navy.

Dynamic Oceanography (08-03) and Physical Oceanography (08-04) Surface currents, upwelling, North Atlantic Current/Drift, Labrador Current/Sea, dynamic topography, oceanic circulation, coastal monitoring.

Snow and Ice (08-12) Arctic and Antarctic sea ice, sea ice physics, glaciers, iceberg formation, drift and disposition; polar transportation.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

PDP 5 Electronic Computer
Chemistry Laboratory-usual analysis equipment
Instrument Shop-usual precision machine equipment
Electronics Shop
26 Salinity-Temperature-Depth Electronic Instruments
6 Ocean Current Meters
2 Ocean Bottom Cameras

9. COMMENT AND PUBLICATION REFERENCES:

* The authority of the Commanding Officer of the Laboratory to commit his facility to accomplish outside work is broad, but not unlimited. Should a question arise, write or telephone

Chief, Marine Sciences Division
Office of Operations
U.S. Coast Guard Headquarters
Washington, D.C. 20591

Tel: (202) 964-8288

Due to personnel transfers, identification by title (i.e., Commanding Officer; Director) would be preferable to identification by name.

** Contracts, although provided technical liaison by the laboratory, are authorized, funded and managed by the Headquarters organization.

10. DATE OF REPORT: January 1970

RESEARCH VESSELS
INSTALLATION

TRANSPORTATION (USCG)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

* *

2. DIRECTOR: Chief, Marine Sciences Div. A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Washington (Nearest City) B. (County) C. D. C. (State)

4. P. O. ADDRESS: U. S. Coast Guard Hq., 1300 E Street, N. W.

A. Washington (City) B. D. C. (State) C. 20591 (Zip Code) D. (202) 964-8288 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): *
B. ALL OTHER PERSONNEL (Total):

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ *
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The mission of the oceanographic research vessels, GLACIER, EVERGREEN, and ROCKAWAY, is to serve as mobile platforms for the conduct of research and transport of researchers in their terrestrial collection efforts in polar waters. These research activities are concerned with Earth Sciences and Oceanography: (Biological Oceanography, 08-01; Cartography, 08-02; Dynamic Oceanography, 08-03; Geochemistry, 08-04; Geography, 08-06; Geology and Mineralogy 08-07; Physical Oceanography, 08-10; Seismology, 08-11; and Snow, Ice, and Permafrost 08-12.)

The GLACIER and ROCKAWAY are equipped also to support meteorological research, (Atmospheric Sciences, Meteorology 04-02.)

A. ADDITIONAL COSATI CODES:
08-05 Geodesy

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

972 **8. MAJOR EQUIPMENT:** The oceanographic research vessels, in the main, are fitted out with the general purpose physical oceanographic equipment required for support of the activity areas listed under Item 7. The range of equipment is more inclusive on the GLACIER and ROCKAWAY and include Chemistry, Geology, Biology, and Hydrographic Laboratories, Deep Sea Trawling and Coring Winches, etc.

In addition to the usual shipboard surface instrumentation, the meteorological equipment includes meteorology laboratory, balloon inflation shelter, helium storage, radiosonde recorder, and air search radar (wind finding).

9. COMMENT AND PUBLICATION REFERENCES:

CGC GLACIER (WAGB-4) is the nation's newest and most capable polar icebreaker (modified 1968-69). This vessel is dedicated to the support of U. S. logistic requirements in the polar regions. Cooperative programming utilizes guidance from the National Science Foundation for Antarctic programs and the Arctic Coordinating Board for Arctic Programs.

* One full-time science officer and four technicians are permanently embarked. Up to 25 additional scientific/technical personnel can be accommodated by prior arrangement. Annual ship operating costs, exclusive of R&D, required a $2.8 million FY 1969 obligational authority. The GLACIER's home port is Long Beach, California.

CGC ROCKAWAY (WAGO-377) is an oceanographic research vessel, 311' L. O. A., ex-AVP Class (sea plane tender, small) converted for oceanography in 1966. It is not ice-protected and cannot operate in the ice.

* The ROCKAWAY carries one full-time scientist and eleven marine science technicians. Up to 25 more scientific/technical personnel may be embarked by prior arrangement.

* Annual ship operating costs, exclusive of R&D, required a $980,000 FY 1969 obligational authority. The ROCKAWAY's home port is New York, N. Y.

USCGC EVERGREEN (WAGO-295) converted for oceanographic work in 1946, is a 180' seagoing tender, ice-reinforced for a limited capability to work in moderate sea ice.

* One marine science technician is permanently embarked. Other scientific and technical personnel, including a senior scientist, are provided as required by the Commanding Officer, USCG Oceanographic Unit.

* Annual ship operating costs exclusive of R&D, required a $280,000 FY 1969 obligational authority. The EVERGREEN's home port is Boston, Massachusetts.

A complete description of the vessels is available in the NODC publication, Oceanographic Vessels of the World. Detailed statements are on file with the Ship Utilization Committee of the National Marine Sciences Council.

* * The Commanding Officers for the respective vessels cannot commit them to projects. Once assigned, successful completion of projects become his responsibility. His authority is paramount relative to the safety of his command, but accepts technical advice from the embarked senior scientist. Inquiries relative to the vessels should be addressed to:

Chief, Marine Sciences Division
U. S. Coast Guard Headquarters
1300 E Street, N. W.
Washington, D. C. 20591

10. DATE OF REPORT: Revised January 1970

(RESEARCH) POLAR ICEBREAKERS
INSTALLATION

TRANSPORTATION (USCG)
AGENCY OR DEPT

973

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Commanding Officer (1)
A. TECHNICAL DIRECTOR: (2)

3. LOCATION: A. (3) (Nearest City) B. (County) C. (State)

4. P. O. ADDRESS: (3)

A. (City) B. (State) C. (Zip Code) D. (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): (2)
B. ALL OTHER PERSONNEL (Total): 181

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 2.3 million (each) *
B. EXTRAMURAL (Total): $ None

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

These 269' polar icebreakers, in addition to the newer, larger USCGC GLACIER reported separately, constitute the national polar icebreaker fleet. These vessels support not only polar transportation and logistics requirements, but polar science and R&D of the Coast Guard as well as programs of other agencies. For general statements of functions and activities, see the reported information for CGC GLACIER. A detailed statement of capabilities is on file with the Ship Utilization Committee of the National Marine Sciences Council. A less detailed description is contained in the publication "Oceanographic Vessel Operating Schedules" published quarterly by the Marine Sciences Council. (Oceanography, 08-01, 02, 03, 04, 06, 07, 10, 11, 12).

The names of each of the six vessels and their home ports are listed under Item 9.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

H516RC Computer
Satellite Navigation system
Hydrographic winch
General oceanographic laboratory
General physical oceanography equipment
Mechanical BT winch
Helicopter capability

Meteorological Equipment:
Meteorology laboratory
Balloon inflation shelter (helicopter hangar)
Helium storage (piping to above)
Radiosonde recorder
Usual shipboard surface instrumentation

9. COMMENT AND PUBLICATION REFERENCES:

(1) Each Commanding Officer of a WAGB icebreaker cannot commit his vessel to projects. However, once projects are assigned to his vessel, he becomes responsible for their successful completion. His authority is paramount relative to the safety of his command, but accepts technical advise from the embarked senior scientist. Inquiries relative to this vessel should be addressed to:

Chief, Marine Sciences Division
U. S. Coast Guard Headquarters
1300 E Street, N. W.
Washington, D. C. 20591

(2) 3 marine science technicians are permanently embarked. When scientific missions are programmed, necessary personnel support is provided by the USCG Oceanographic Unit or the Agency/Institution embarked.

(3) Vessels are located at: Boston, Mass. (USCGC EDISTO)
Baltimore, Md. (USCGC WESTWIND, USCGC SOUTHWIND)
Long Beach, Calif. (USCGC BURTON ISLAND)
Seattle, Wash. (USCGC STATEN ISLAND, USCGC NORTHWIND)

* Estimated annual operating cost exclusive of R&D programs.

10. DATE OF REPORT: 12/16/69

RESEARCH (HIGH ENDURANCE) CUTTERS (35)
INSTALLATION

TRANSPORATION (USCG)
AGENCY OR DEPT.

975

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Commanding Office (1)
A. TECHNICAL DIRECTOR: (2)

3. LOCATION: A. (3) (Nearest City) B. (County) C. (State)

4. P. O. ADDRESS: (3)

A. (City) B. (State) C. (Zip Code) D. (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): (2)
B. ALL OTHER PERSONNEL (Total):

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1.1 million (each) *
B. EXTRAMURAL (Total): $ none

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

These high endurance cutters are of four major classes: 378', 327', 311' and 255'. They are multi-mission vessels serving such Coast Guard mission areas as military readiness, search and rescue and law enforcement. In 1963, they were provided with a basic capability for the conduct of physical oceanographic work. While assigned to Ocean Station Duty, they assist the Coast Guard Oceanographic Unit in carrying out Coast Guard studies, as well as contribute to interagency R&D programs for ESSA, NAVOCEANO (ASWEPS), Smithsonian Institution, and several universities which support the national oceanographic effort. Approximately 12% of their total mission is identified as relating to oceanography. A detailed statement of capabilities is on file with the Ship Utilization Committee of the National Marine Sciences Council. A less detailed description is contained in the publication "Oceanographic Vessel Operating Schedules" published quarterly by the Marine Sciences Council. (Oceanography, 08-10).

The vessels' names and home ports are reported in Items 8 & 9 respectively.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

General oceanographic laboratory
Mechanical BT winch
Hydrographic winch
Hydrographic winch
Deep ocean sampling capability (22 with STD, 13 with Nansen capability)
Precision echo sounder (10 only)
General physical oceanographic equipment

Meteorological Equipment
Permanently installed balloon inflation shelter
Helium storage (piping to above)
Meteorology laboratory
Radiosonde recorder
Balloon-launching catwalks
Air search radar (wind finding)
Usual shipboard surface instrumentation

The names of the CG Cutters are: 378' Class: BOUTWELL, CHASE, DALLAS, HAMILTON, MELLON, GALLATIN, SHERMAN, MORGANTHAU, RUSH. 327' Class: BIBB, CAMPBELL, DUANE INGHAM, SPENCER, TANEY. 311' Class: ABSECON, BERING STRAIT, CASTLE ROCK, CHINCOTEAGUE, COOK INLET, GRESHAM, McCULLOCH, YAKUTAT. 255' Class: ANDROSCOGGIN, CHAUTAUQUA, ESCANABA, KLAMATH, MENDOTA, MINNETONKA, OWASCO, PONTCHARTRAIN, SEBAGO, WACHUSETT, WINNEBAGO, WINONA.

9. COMMENT AND PUBLICATION REFERENCES:

* Exclusive of R&D program costs.

(1) Each Commanding Officer of a WHEC Cutter cannot commit his vessel to projects. However, once projects are assigned to his vessel, he becomes responsible for their successful completion. His authority is paramount relative to the safety of his command, but accepts technical advise from the embarked senior scientist. Inquiries relative to this vessel should be addressed to:

Chief, Marine Sciences Division
U. S. Coast Guard Headquarters
1300 E Street, N. W.
Washington, D. C. 20591

(2) 3 marine science technicians are permanently embarked. When scientific missions are programmed, necessary personnel support is provided by the USCG Oceanographic Unit or the Agency/Institution embarked.

(3) Vessels are located at:
Portland, Maine (3)
Boston, Mass. (5)
New Bedford, Mass. (2)
New London, Conn. (1)
New York, N. Y. (4)
Norfolk, Va. (3)
Wilmington, N. C. (2)
Miami, Fla. (1)
Pensacola, Fla. (1)
Long Beach, Calif. (2)
San Francisco, Calif. (3)
Seattle, Wash. (2)
Port Angeles, Wash. (1)
Honolulu, Hawaii (3)

10. DATE OF REPORT: 12/16/69

SHIPBOARD FIRE & SAFETY TESTING FACILITY
INSTALLATION

TRANSPORTATION (CG)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: LCDR. J.A. Peebles *
   A. TECHNICAL DIRECTOR: LCDR J.A. Peebles

3. LOCATION: A. Mobile (Nearest City) B. Mobile (County) C. Alabama (State)

4. P. O. ADDRESS: Shipboard Fire & Safety Testing Facility, Coast Guard Base, P.O.Box 1788
   A. Mobile (City) B. Alabama (State) C. 36601 (Zip Code) D. 205-433-3234 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 1 **
   B. ALL OTHER PERSONNEL (Total): 2

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 300,000 **
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The central vehicle of the facility is a reserve fleet tankship which will be used for the conduct of shipboard fire research and testing. Tests will be sponsored by a government or industry sponsor for the purpose of improving some aspect of marine fire safety. The test ship is located in a dredged slip adjoining Little Sand Island. This facility will be used by Coast Guard, Navy, and commercial marine interests, in performing fire tests leading to improved fire detection and protection systems, and fire resistant materials used in ship construction. The sponsor of a particular series of tests will fund the cost of testing. The Office of R&D provide coordination of all fire safety tests, and will furnish on-site support by means of five military personnel located at Mobile. This facility is unique in that it will permit full scale fire tests to be conducted in an actual shipboard environment, something which has not previously been possible nor attempted. An advisory group consisting of representatives from the Coast Guard, Navy, and private marine interests will coordinate the scheduling of tests. (Marine Engineering - Safety Engineering 13-12)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

No unique equipment is maintained at the facility. General purpose sensing devices, e.g. closed circuit television, will be available during FY 1970; however, the test sponsor will have to provide special purpose equipment and materials for each test.

9. COMMENT AND PUBLICATION REFERENCES:

* To determine the availability of this facility to accomplish outside work write or telephone:

Chief, Office Research and Development,
Coast Guard Headquarters, 1300 E. Street, N.W.
Washington, D.C. 20591, Telephone 202-964-4722

** Additional personnel required for each test operation to be furnished by the Government agency or industry sponsor conducting the tests.

This amount is not typical in that it includes site preparation costs and other non-recurring installation costs. The budgeted cost for FY 1970 is $83,000 which is considered more normal. The facility was established in FY 1969

10. DATE OF REPORT:

WASHINGTON RADIO STATION LABORATORY
INSTALLATION

TRANSPORTATION (USCG)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: CDR R. T. Platt, USCG A. TECHNICAL DIRECTOR: Mr. Victor Clark

3. LOCATION: A. Alexandria (Nearest City) B. Fairfax (County) C. Virginia (State)

4. P. O. ADDRESS: Commanding Officer, U. S. Coast Guard Radio Station (NMH)

A. Alexandria (City) B. Virginia (State) C. 22310 (Zip Code) D. 703-971-1600 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 9

B. ALL OTHER PERSONNEL (Total): 31

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 504,000

B. EXTRAMURAL (Total): $ ----

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Coast Guard Washington Radio Laboratory exists solely to support the Communications Plant of the Coast Guard.

Assigned projects include evaluating prototype and commercial communications equipment; developing and evaluating field changes to plant equipment; designing prototypes for in-house or contractor construction; designing and/or evaluating full scale antennas; constructing few-of-a-kind category prototypes; evaluating Beneficial Suggestions, Purchase Descriptions and Technical Manuals for communications equipment.

Although this laboratory is concerned primarily with communications equipment, projects in other areas are occasionally assigned.

(17-02 Navigation, Communications, Detection and Countermeasures; 17-02.1 Radio Communications).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

A wide range of electronic test equipment for accomplishment of the testing, evaluation and engineering development described in paragraph 7.

9. COMMENT AND PUBLICATION REFERENCES:

Service to Other Agencies: Limited services are available to other government agencies on a not to interfere basis. To determine the availability of this facility to accomplish outside work, write or telephone:

Chief, Electronics Engineering Division
U. S. Coast Guard Headquarters
400 Seventh Street, S. W.
Washington, D. C. 20591

Telephone: 202-962-7520

10. DATE OF REPORT:

CIVIL AEROMEDICAL INSTITUTE — INSTALLATION

TRANSPORTATION (FAA) — AGENCY OR DEPT.

981

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: J. Robert Dille, M.D.
A. TECHNICAL DIRECTOR: J. Robert Dille, M.D.

3. LOCATION: A. Oklahoma City *(Nearest City)* B. Oklahoma County *(County)* C. Oklahoma *(State)*

4. P. O. ADDRESS: Civil Aeromedical Institute, FAA, P O. Box 25082
A. Oklahoma City *(City)* B. Oklahoma *(State)* C. 73125 *(Zip Code)* D. 405-686-4806 *(Telephone (Area Code & No.)*

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 25
B. ALL OTHER PERSONNEL (Total): 92

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1.8 million
B. EXTRAMURAL (Total): $ none

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Introductory Statement: The major function of this facility is to provide air safety information for the FAA. It conducts research on crash survivability and all types of aircraft and studies means by which accidents may be prevented. Also it carries out an extensive aviation education program for airmen and for doctors who specialize in civil aviation medicine.

Examples of major projects are a study of the emergency evacuation characteristics of current civil aircraft and a study of physiologic and psychologic requirements of on-the-job efforts of airmen.

Conducts research on civil aviation safety matters, especially as regard accident prevention and injury and death prevention (06-07 Escape, Rescue and Survival).

Conducts research into the behavioral aspects of flight safety. This includes pilot and air traffic controller behavior (05-10), and Human Factors Engineering (05-05).

Conducts studies of stress physiology and physiologic aspects of flight (06-19).

Investigates the pharmacological aspects of accidents (06-15), and explores protective means concerning ionizing radiation and aviation workers and flight personnel, including passengers (06-17) (06-18).

Conducts studies of toxicological aspects of aerial application (06-15 and 06-20).

Investigates improved protective equipment for personnel involved in aviation ground and flight activities (06-17).

Explores the general biology of aeronautical activities and investigates means of improving bioinstrumentation (06-02, 06-16).

Investigates Biochemical aspects of flight (06-01).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

1. A radioisotope storage vault is built underground and is capable of storing significant quantities of radioisotopes in a lead-lined room.
2. A 25' long, 15' wide, 12' high environmental chamber capable of generating winds of 20 to 30 knots and having a temperature range of plus 180°F and minus 80°F is contained in the basement. This chamber will hold 20 human subjects.
3. Two high altitude chambers exist on the first floor, capable of decompressions of to near vacuum. One chamber will hold 6 persons, and the other will hold 20 persons.
4. A hyperbaric chamber exists on the first floor, capable of holding 6 persons and simulating a descent of several atmospheres.
5. A 40' long, 40' wide, 20' deep indoor ditching pool capable of submerging significant portions of air transport aircraft is operational in the center of the facility.
6. An anechoic chamber exists in the basement of the facility, capable of holding a dozen persons, and utilized for sophisticated psychoacoustical testing.

9. COMMENT AND PUBLICATION REFERENCES:

The Civil Aeromedical Institute is a major facility operated by the Federal Aviation Administration and conducts studies of aeromedical factors related to flight.

The Institute receives policy guidance from the Federal Air Surgeon, Office of Aviation Medicine, Federal Aviation Administration, Washington, D.C.

Research reports published by the scientists of the Civil Aeromedical Institute, appear in the FAA Office of Aviation Medicine Report series, which average 30 reports a year.

10. DATE OF REPORT: October 1969

FOG CHAMBER
INSTALLATION

TRANSPORTATION (FAA)
AGENCY OR DEPT.

983

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☒ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR: University of California, Institute of Transporation Engineering

2. DIRECTOR: Prof. Robert Horonjeff
A. TECHNICAL DIRECTOR: Mr. Don Horning

3. LOCATION: A. Richmond (Nearest City) B. Contra Costa (County) C. California (State)

4. P. O. ADDRESS: 1301 South 46th Street
A. Richmond (City) B. California (State) C. 94804 (Zip Code) D. (415) 235-6000 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 3
B. ALL OTHER PERSONNEL (Total): 5

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 175,000
B. EXTRAMURAL (Total): $ NONE

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Investigates problems of visibility, including airport lighting and aircraft lighting under fog. Investigates fog.
(1707 Navigation and Guidance)

Conducts runway marking studies. (1707)

Investigates lighting patterns for approach lights. (1707)

Investigates effect of Head-up Display Illumination on Pilot's ability to see runway lighting in fog. (1707)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Facility consists of an enclosed structure 1000 feet long, 30 feet wide and of height varying from 30 feet to 10 feet in which artificial fog is generated. Lighting and marking patterns are installed on floor for observation from an aircraft cockpit moving on a track.

9. COMMENT AND PUBLICATION REFERENCES:

Operation of the fog chamber is managed by a Project Manager of the Federal Aviation Administration.

10. DATE OF REPORT: October 1969

NATIONAL AVIATION FACILITIES EXPERIMENTAL CENTER
INSTALLATION

TRANSPORTATION (FAA)
AGENCY OR DEPT.

985

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Jack G. Webb
A. TECHNICAL DIRECTOR: Same

3. LOCATION: A. Atlantic City (Nearest City) B. Atlantic (County) C. New Jersey (State)

4. P. O. ADDRESS: National Aviation Facilities Experimental Center, FAA
A. Atlantic City (City) B. New Jersey (State) C. 08405 (Zip Code) D. 609-641-8200 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 229
B. ALL OTHER PERSONNEL (Total): 1176

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 23.3 million
B. EXTRAMURAL (Total): $ 1.9 million

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

NAFEC is a national test center with laboratories, facilities and skills which are responsive to the research and development programs of the FAA. The Center conducts technical and operational tests and evaluations of aviation concepts, procedures and equipment.

Simulates air traffic patterns to evaluate the design of aircraft collision avoidance systems (01-02 Aircraft - Flight Instrumentation - Facilities; 17-02 Communications - Navigation and Guidance).

Test and evaluate the All Weather Landing System (AWLS) for aircraft operations under adverse weather conditions (01-02 Aircraft - Flight Instrumentation - Facilities - 17-02 Communications - Navigation and Guidance).

Test and evaluate the concepts, procedures and equipments for inclusion in the National Airspace System (NAS). (01-05 - Air Traffic Control Equipment.)

Test and evaluate ultra-high frequency antennas with a deicing feature for use by field installations (01-05 Air Facilities - Communications - Navigation & Guidance).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

The Center operates and maintains a wide variety of test bed and service facilities in support of the FAA's programs.

Range Instrumentation (01-02, 01-04). This environment has the capability of tracking airborne targets from a maximum distance of 200 nautical miles to touch down on a runway at the Center's airport.

Simulation (01-02, 01-04, 05-05). This environment is capable of performing simulation problems which require the use of flight simulation equipment, visual simulator attachments and Air Traffic Control (ATC) simulation equipment.

Air Traffic Control Systems Laboratory, (01-01, 05-05, 17-02). This environment is capable of being reconfigured to represent any terminal, enroute, metroplex or radar approach control, air traffic control facility.

Computation (12-01). This environment is capable of providing complete programming, data computations and data processing services. Equipment available is the IBM 1401/7090 complex with ancilliary equipment.

9. COMMENT AND PUBLICATION REFERENCES:

Source of Program Information: Programs assigned to NAFEC are published by the various services/offices within the FAA and are identified as "Internal Technical Program Document(s)".

Publication: "Technical Facilities at NAFEC" has been issued primarily as a working guide to program and project managers in planning project effort at NAFEC. This manual contains descriptive material of the various environments listed above.

Limited distribution has been made to elements within the Department of Transportation.

Inquiries concerning this publication and available services should be addressed to the Director, National Aviation Facilities Experimental Center.

10. DATE OF REPORT: October 1969

FAIRBANK HIGHWAY RESEARCH STATION
INSTALLATION

TRANSPORTATION (FHWA)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Carl F. Izzard
A. TECHNICAL DIRECTOR: Charles F. Scheffey

3. LOCATION: A. McLean, Washington, D. C. (Nearest City) B. Fairfax (County) C. Virginia (State)

4. P. O. ADDRESS: Fairbank Highway Research Station, FAA, 6300 Georgetown Pike

A. McLean (City) B. Virginia (State) C. 22101 (Zip Code) D. 703-557-5287 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 128
B. ALL OTHER PERSONNEL (Total): 47

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 1,445,585
B. EXTRAMURAL (Total): $ 10,000

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The major effort of the Fairbank Highway Research Station is concerned with civil engineering research and development problems relating to highway construction and transportation. The research and development activities of the respective sections include, but are not limited to the following:

(a) Electronics R&D Section:
(1) A more effective director, (Electronics and Electrical Engineering, 09-03);
(2) Vehicle/roadside communication techniques and driver systems (09-03), human factors investigations regarding drivers and driving (Behavorial and Social Sciences - Human factor engineering, Man-Machine Relations, 05-05; 05-08).
(b) Materials Section:
(1) Properties of highway construction materials (Earth Sciences, Soil Mechanics 08-13); (Materials-Ceramics, Coatings, Miscellaneous materials, 11-02, 11-03, 11-07),
(2) Remote sensing techniques for subsurface materials, (Civil Engineering-Highway, 13-02).
(c) Structures and Applied Mechanics Section:
(1) Tests aerodynamic stability of section models of long span suspension bridges (Physics - Fluid Mechanics 20-04),
(2) Tests on overhead highway signs (20-04),
(3) Refinement of techniques for interpretation of aerodynamics models of suspension bridges and girder stiffened bridges (20-04).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

Wind tunnel for aerodynamic testing of structural models. Wind velocities up to about 35 m.p.h. are provided by a 60-inch double inlet fan driven by a 50-horsepower direct current motor which can be controlled continuously from creep to a maximum speed of about 500 r.p.m.

Standard laboratory equipment for testing materials, structures and traffic systems devices.

9. COMMENT AND PUBLICATION REFERENCES:

General information regarding the Fairbank Highway Research Station is available in the publication, "The Search," U.S. Department of Commerce, (BPR), September 1966.

Highway Research and Development Studies for Fiscal Year 1969 or Calendar Year 1968, by the Office of Research and Development, Bureau of Public Roads, dated July 1968, pages 38 to 44, for a description of typical studies undertaken utilizing the laboratory facility.

10. DATE OF REPORT: December 1969

Department of the Treasury

RESEARCH AND TECH. SERVICES OFFICE LABORATORY
INSTALLATION

TREASURY (BUR. OF ENGRAVING & PRINTING)
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Robert M. Williams

A. TECHNICAL DIRECTOR: Robert M. Williams

3. LOCATION: A. Washington (Nearest City) B. - - (County) C. D. C. (State)

4. P. O. ADDRESS: Research and Technical Services Office Lab., Bur. of Engraving & Printing
Fourteenth and C Streets, S. W.

A. Washington (City) B. D. C. (State) C. 20226 (Zip Code) D. 202 WO 4-7211 (Telephone (Area Code & No.))

5. PERSONNEL: (As of June 1969):

A. R&D PROFESSIONALS (Total): 18

B. ALL OTHER PERSONNEL (Total): 18

6. FUNDING (Approximate FY 1969 Dollar Obligation):

A. INTRAMURAL (Total): $ 466,320

B. EXTRAMURAL (Total): $ - 0 -

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts research and development necessary for formulating new and improved printing inks. (11-03 Materials; Coatings, Colorants, and Finishes; Varnishes, Uses of Dyes and Pigments.)

Conducts research and development necessary for writing specifications, testing, and proper use of materials of all kinds including paper, adhesives, and ink ingredients. (11-01 Materials; Adhesives and Seals; 11-05 Materials; Fibers and Textiles; 11-07 Materials; Miscellaneous Materials.)

Develops deterrents against counterfeiting of currency and other securities and uses methods of science for improving processing methods and quality of Bureau products (14-05 Methods and Equipment; Reprography; Printing and Graphic Arts, Photographic Techniques.)

Analyses of counterfeit securities for U. S. Secret Service. (07-02 Chemistry; Inorganic Chemistry; 07-04 Chemistry; Physical Chemistry.)

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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8. MAJOR EQUIPMENT:

Standard equipment normally employed for the performance of activities reported.

9. COMMENT AND PUBLICATION REFERENCES:

The Office of Research and Technical Services is generally responsible for all professional research and development work in the Bureau of Engraving and Printing. The work done is not published.

10. DATE OF REPORT: October 1969

ALCOHOL, TOBACCO & FIREARMS DIV. LABORATORY
INSTALLATION

TREASURY DEPT. (IRS)
AGENCY OR DEPT.

993

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Dr. Alex P. Mathers A. TECHNICAL DIRECTOR: Dr. Alex P. Mathers

3. LOCATION: A. Washington (Nearest City) B. - - (County) C. D. C. (State)

4. P. O. ADDRESS: Alcohol, Tobacco & Firearms Div. Laboratory
Internal Revenue Service Building, 1111 Constitution Avenue

A. Washington, (City) B. D. C. (State) C. 20224 (Zip Code) D. 202-W04-4201 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): * 16
B. ALL OTHER PERSONNEL (Total): 10

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 380,000.00
B. EXTRAMURAL (Total): $ - 0 -

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts analytical methods research for identification, classification and regulatory control (for tax purposes) of alcoholic products, tobacco products and certain medicinal and food products (07-03).

Conducts research on methods for identification and comparison of items of physical evidence (soils, inks, documents, gunshot residues, etc.) using neutron activation techniques (20-08).

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

994 8. MAJOR EQUIPMENT:

The Laboratory has special equipment such as

Cigarette Smoking Machine
Neutron Activation Instruments (gamma scintillation counters, etc.)
Beer Meter testing equipment
Ballistic Comparison Microscope

9. COMMENT AND PUBLICATION REFERENCES:

* The National Office Laboratory is primarily an analytical laboratory serving the Alcohol, Tobacco and Firearms Division and the Internal Revenue Service. Although none of the professional staff is engaged in full time research, all participate to some degree. (See Item 5.)

Have capabilities for tritium dating (18-02).

10. DATE OF REPORT: September, 1969

Veterans Administration

Bioengineering Research Laboratory — INSTALLATION

Veterans Administration — AGENCY OR DEPT.

997

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
- (1) ☒ GOVERNMENT-OPERATED
- (2) ☐ FFRDC
- (3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
- (1) ☐ GOVERNMENT-OPERATED
- (2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Edward Peizer, M.D.
A. TECHNICAL DIRECTOR: same

3. LOCATION: A. New York (Nearest City) B. New York (County) C. New York (State)

4. P. O. ADDRESS: VA Prosthetics Center, 252 Seventh Avenue

A. New York (City) B. N.Y. (State) C. 10001 (Zip Code) D. 212-620-6511 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 17
B. ALL OTHER PERSONNEL (Total): 7

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 282,576.00
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Conducts studies on physical constants of the human body, biomechanics of locomotion, analysis of body motion, and metabolic energy costs. Evaluates and tests braces, artificial limbs and orthopedic aids of all types submitted by developers and manufacturers with respect to mechanical adequacy, durability, comfort, function and effort to use.

COSATI Code 06 - 02.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

12 channel optical recorder
Oscilloscope
Precision meters
Angular and linear accelerometer
Linear precision potentiometers
Gas chromatograph
Telemetering EKG
EMG-EKG recorder
Temperature controlled room for special equipment
Standard shop equipment for testing and fabricating prosthetic devices

9. COMMENT AND PUBLICATION REFERENCES:

Reference: Annual Report, Administrator of Veterans Affairs, 1968, p. 44

10. DATE OF REPORT: 10/20/69

Research Laboratories
INSTALLATION

Veterans Administration
AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Lionel M. Bernstein, M.D.
A. TECHNICAL DIRECTOR: Varies by location of unit

3. LOCATION: A. Washington (Nearest City) B. (County) C. D.C. (State)

4. P. O. ADDRESS: 810 Vermont Ave., N. W. (151)
A. Washington (City) B. D.C. (State) C. 20420 (Zip Code) D. 202-389-2169 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 4,724
B. ALL OTHER PERSONNEL (Total): 928

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 48,850,771.00
B. EXTRAMURAL (Total): $ 17,275,425.00

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

The Veterans Administration conducts basic and clinical research into the cause, amelioration, treatment, prevention, and epidemiology of disease. The specific characteristics of the research in an individual VA hospital or clinic depend on the mission of the hospital (e.g. psychiatric, general medical and surgical), the characteristics of the affiliation with academic institutions (predominently medical schools) and the professional interests of the staff.

COSATI Codes:

05 - 10	Behavioral and Social Sciences--Psychology, Individual and Group Behavior
05 - 11	Behavioral and Social Sciences--Sciology
06 - 01	Biological and Medical Sciences--Biochemistry
06 - 02	Biological and Medical Sciences--Bioengineering
06 - 03	Biological and Medical Sciences--Biology
06 - 05	Biological and Medical Sciences--Clinical Medicine
06 - 13	Biological and Medical Sciences--Microbiology
06 - 15	Biological and Medical Sciences--Pharmacology
06 - 16	Biological and Medical Sciences--Physiology
06 - 18	Biological and Medical Sciences--Radiobiology
18 - 02	Nuclear Science and Technology--Medical applications of isotopes

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

VA FIELD STATIONS WITH FUNDED RESEARCH PROGRAMS

- Alabama:
  - Birmingham
  - Tuscaloosa
  - Tuskegee
- Arizona:
  - Phoenix
  - Prescott
  - Tucson
- Arkansas:
  - Fayetteville
  - Little Rock
- California:
  - Fresno
  - Livermore
  - Long Beach
  - Los Angeles
  - Los Angeles OPC
  - Martinez
  - Palo Alto
  - San Fernando
  - San Francisco
  - Sepulveda
- Colorado:
  - Denver
  - Grand Junction
- Connecticut:
  - Newington
  - West Haven
- Delaware:
  - Wilmington
- District of Columbia:
  - Washington
- Florida:
  - Bay Pines
  - Gainesville
  - Lake City
  - Miami
- Georgia:
  - Atlanta
  - Augusta
  - Dublin
- Illinois:
  - Chicago (Res.)
  - Chicago (W.S.)
  - Danville
  - Downey
  - Hines
  - Marion
- Indiana:
  - Indianpolis
- Iowa:
  - Des Moines
  - Iowa City
  - Knoxville
- Kansas:
  - Topeka
  - Wadsworth
  - Wichita
- Kentucky:
  - Lexington
  - Louisville
- Louisiana:
  - Alexandria
  - New Orleans
  - Shreveport
- Maine:
  - Togus
- Maryland:
  - Baltimore
  - Fort Howard
  - Perry Point
- Massachusetts:
  - Bedford
  - Boston
  - Boston OPC
  - Brockton
  - Northampton
  - West Roxbury
- Michigan:
  - Allen Park
  - Ann Arbor
  - Battle Creek
  - Saginaw
- Minnesota:
  - Minneapolis
  - St. Cloud
- Mississippi:
  - Biloxi
  - Jackson
- Missouri:
  - Jefferson Barracks
  - Kansas City
  - St. Louis
- Nebraska:
  - Lincoln
  - Omaha
- Nevada:
  - Reno
- New Jersey:
  - East Orange
  - Lyons
- New Hampshire:
  - Manchester

VA FIELD STATIONS WITH FUNDED RESEARCH PROGRAMS (CON'T)

New Mexico:
Albuquerque
New York:
Albany
Bath
Bronx
Brooklyn
Brooklyn OPC
Buffalo
Canandaigua
Castle Point
Montrose
New York
Northport
Syracuse
North Carolina:
Durham
Oteen
North Dakota:
Fargo
Ohio:
Brecksville
Cincinnati
Cleveland
Dayton
Oklahoma:
Oklahoma City
Oregon:
Portland
Roseburg
Pennsylvania:
Butler
Coatesville
Lebanon
Philadelphia
Philadelphia OPC
Pittsburg
Pittsburg
Wilkes-Barre
Puerto Rico:
San Juan
Rhode Island:
Providence
South Carolina:
Charleston
Columbia
South Dakota:
Fort Meade
Tennessee:
Memphis
Mountain Home
Murfreesboro
Nashville
Texas:
Dallas
Houston
Kerrville
Temple
Waco
Utah:
Salt Lake City
Vermont:
White River Junction
Virginia:
Hampton
Richmond
Salem
Washington:
American Lake
Seattle
Spokane
West Virginia:
Clarksburg
Huntington
Martinsburg
Wisconsin:
Madison
Tomah
Wood
Wyoming:
Sheridan

8. MAJOR EQUIPMENT:

1000
b
The equipment varies from one hospital to another but in general is standard for medical research laboratories.

9. COMMENT AND PUBLICATION REFERENCES:

Medical research laboratories are operated as integral components of most of the Veterans Administration hospitals and several outpatient clinics. The size, scope and diversity of investigation and related laboratories vary both between hospitals and from one year to the next depending on changing functions within the hospitals. The hospitals have separate operating and research budgets. Many professional personnel involved in research activities have also major responsibilities in the medical activities of the hospitals and are salaried from operating budgets.

For information about hospitals and clinics with medical research in a geographic area address inquiry to VA Headquarters.

Information regarding specific program characteristics and potential may be obtained either from the Director, Research Service (item 2 above) or from the Director of the respective hospital or clinic.

Reference: An annual report entitled "Medical Research in the Veterans Administration" is published by the Committee on Veterans Affairs, House of Representatives, U.S. Congress. Most recent issue is House Committee Print No. 4, 91st Congress, 1st Session, January 15, 1969.

10. DATE OF REPORT: 10/20/69

RESEARCH SUPPORT CENTER
INSTALLATION

Veterans Administration
AGENCY OR DEPT.

1001

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Alvan R. Feinstein, M.D.
A. TECHNICAL DIRECTOR: None

3. LOCATION: A. New Haven (Nearest City) B. New Haven (County) C. Connecticut (State)

4. P. O. ADDRESS: Veterans Administration Hospital
A. West Haven (City) B. Conn. (State) C. 06516 (Zip Code) D. 203-933-7811 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 11
B. ALL OTHER PERSONNEL (Total): 9

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 289,000.00
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Provides consultation in research design and statistical analysis of biomedical research (12-01 Mathematics and Statistics).

Provides consultation in biomedical engineering including selection of instrumentation and design and development of instruments and systems for biomedical research (06-02 Bioengineering).

Provides data processing for biomedical research (09-02 Computers).

Assists research investigators in retrieval of scientific and technical information (05-02 Documentation and Information Technology).

Presents educational courses for biomedical investigators in areas listed above.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

1002 8. MAJOR EQUIPMENT:

IBM 1130 Computer

9. COMMENT AND PUBLICATION REFERENCES:

Services available to medical research investigators in Eastern area of United States.

10. DATE OF REPORT: 10-3-69

RESEARCH SUPPORT CENTER
INSTALLATION

Veterans Administration
AGENCY OR DEPT.

1003

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: William R. Best, M.D.
   A. TECHNICAL DIRECTOR: None

3. LOCATION: A. Chicago (Nearest City) B. Cook (County) C. Illinois (State)

4. P. O. ADDRESS: Veterans Administration Hospital
   A. Hines (City) B. Illinois (State) C. 60141 (Zip Code) D. 312-261-6700 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 6
   B. ALL OTHER PERSONNEL (Total): 2

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 135,000.00
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Provides consultation in research design and statistical analysis of biomedical research (12-01 Mathematics and Statistics).

Provides consultation in biomedical engineering including selection of instrumentation and design and development of instruments and systems for biomedical research (06-02 Bioengineering).

Provides data processing for biomedical research (09-02 Computers).

Assists research investigators in retrieval of scientific and technical information (05-02 Documentation and Information Technology).

Presents educational courses for biomedical investigators in areas listed above.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

1004 8. MAJOR EQUIPMENT:

IBM 1130 Computer

9. COMMENT AND PUBLICATION REFERENCES:

Services available to medical research investigators in Midwestern area of United States.

10. DATE OF REPORT: 10-3-69

RESEARCH SUPPORT CENTER
INSTALLATION

Veterans Administration
AGENCY OR DEPT.

1005

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
   A. R&D LABORATORY
      (1) ☐ GOVERNMENT-OPERATED
      (2) ☐ FFRDC
      (3) ☐ CONTRACTOR-OPERATED
   B. SUBSIDIARY R&D ORGANIZATION
      (1) ☒ GOVERNMENT-OPERATED
      (2) ☐ CONTRACTOR-OPERATED
   C. CONTRACTOR:

2. DIRECTOR: John R. McCoy, Ph.D.
   A. TECHNICAL DIRECTOR: None

3. LOCATION: A. Little Rock (Nearest City) B. Pulaski (County) C. Arkansas (State)

4. P. O. ADDRESS: Veterans Administration Hospital
   A. Little Rock (City) B. Arkansas (State) C. 72206 (Zip Code) D. 501-372-8361 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
   A. R&D PROFESSIONALS (Total): 5
   B. ALL OTHER PERSONNEL (Total): 2

6. FUNDING (Approximate FY 1969 Dollar Obligation):
   A. INTRAMURAL (Total): $ 95,000.00
   B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Provides consultation in research design and statistical analysis of biomedical research (12-01 Mathematics and Statistics).

Provides consultation in biomedical engineering including selection of instrumentation and design and development of instruments and systems for biomedical research (06-02 Bioengineering).

Provides data processing for biomedical research (09-02 Computers).

Assists research investigators in retrieval of scientific and technical information (05-02 Documentation and Information Technology).

Presents educational courses for biomedical investigators in areas listed above.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

1006 8. MAJOR EQUIPMENT:

IBM 1300 computer

9. COMMENT AND PUBLICATION REFERENCES:

Services available to medical research investigators in Southern area of United States.

10. DATE OF REPORT: 10-3-69

RESEARCH SUPPORT CENTER
INSTALLATION

Veterans Administration
AGENCY OR DEPT.

1007

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:

A. R&D LABORATORY
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED

B. SUBSIDIARY R&D ORGANIZATION
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED

C. CONTRACTOR:

2. DIRECTOR: Edward F. Gocka, Ph.D.
A. TECHNICAL DIRECTOR: None

3. LOCATION: A. Sepulveda (Nearest City) B. Los Angeles (County) C. California (State)

4. P. O. ADDRESS: Veterans Administration Hospital
A. Sepulveda (City) B. Calif. (State) C. 91343 (Zip Code) D. 213-894-8271 (Telephone (Area Code & No.)

5. PERSONNEL: (As of June 1969):
A. R&D PROFESSIONALS (Total): 9
B. ALL OTHER PERSONNEL (Total): 6

6. FUNDING (Approximate FY 1969 Dollar Obligation):
A. INTRAMURAL (Total): $ 208,000.00
B. EXTRAMURAL (Total): $ 0

7. MAJOR FUNCTIONS AND ACTIVITIES (Include COSATI Codes):

Provides consultation in research design and statistical analysis of biomedical research (12-01 Mathematics and Statistics).

Provides consultation in biomedical engineering including selection of instrumentation and design and development of instruments and systems for biomedical research (06-02 Bioengineering).

Provides data processing for biomedical research (09-02 Computers).

Assists research investigators in retrieval of scientific and technical information (05-02 Documentation and Information Technology).

Presents educational courses for biomedical investigators in areas listed above.

A. ADDITIONAL COSATI CODES:

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

IBM 1130 Computer

9. COMMENT AND PUBLICATION REFERENCES:

Services available to medical research investigators in Western area of United States.

10. DATE OF REPORT: 10-2-69

APPENDIXES

A. Technical Notes
B. Survey Reporting Instructions
C. Alphabetical Listing of
Federal R&D Installations,
by Agency
D. Federal R&D Installations,
by State, Outlying Areas,
and Foreign Countries

Index

APPENDIX A

Technical Notes

The Survey Structure and Universe

The 17 survey respondents were selected from a group of 25 Federal agencies and departments reporting[1] funds for intramural research and development,[2] after further inquiry as to their eligibility. Each agency assigned a survey liaison who was responsible for the intraorganizational coordination of the enumeration activity, including identification of reportable R&D installations, report preparation, editing, and review.

The agency liaisons were:

*Evan Anderson
Staff Assistant, Office of the Assistant
Director (Laboratory Management) ODDR&E
Department of Defense
Washington, D.C. 20301

*George E. Auman
Assistant to the Director
National Bureau of Standards
(Gaithersburg, Md.)
Department of Commerce
Washington, D.C. 20234

Mark D. Biallas, Director
Office of Management Support
Department of Justice
(The Attorney General)
Washington, D.C. 20530

Frederick S. Cavanaugh
Assistant to the Director of R&D
Bureau of Research and Engineering
Post Office Department
Washington, D.C. 20260

Donald E. Clark
Office of Management Research
Department of the Interior
Washington, D.C. 20545

*Dr. James Coleman
Technical Advisor to the Assistant
General Manager for R&D
U.S. Atomic Energy Commission
Washington, D.C. 20545

John A. Delaney, Director
Office of Administration
Federal Trade Commission
Washington, D.C. 20580

E. P. Ericson
Assistant to the General Manager
(Budget & Planning)
Tennessee Valley Authority
Knoxville, Tennessee 37902

J. Elton Greenlee, Director
Office of Management and Organization
Department of the Treasury
Washington, D.C. 20220

James A. Hyslop
Office of Logistics and Procurement Management
Department of Transportation
Washington, D.C. 20590

Dr. W. H. Klein
Director
Radiation Biology Laboratory
Smithsonian Institution
Rockville, Maryland 20852

*Dr. James H. Matthews
Assistant Director, Research Service
Veterans Administration Central Office
Washington, D.C. 20560

Raymond E. Spence
Deputy Chief Engineer
Federal Communications Commission
Washington, D.C. 20554

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[1] National Science Foundation, *Federal Funds for Research, Development, and Other Scientific Activities, Fiscal Years 1968, 1969, and 1970,* Vol. XVIII (NSF 69-31) (Washington, D.C. 20402: Supt. of Documents, U.S. Government Printing Office, 1970.)

[2] The Department of Defense uses RDT&E (i.e., Research, Development, Test and Evaluation) as its frame of reference and accordingly classifies supporting installations as R&D laboratories.

*Donna Spiegler (Vice Dr. Leon Jacobs)
Staff Assistant to the Deputy Assistant
Secretary for Science
Department of Health, Education, and Welfare
Washington, D.C. 20201

*Dr. James Turnbull (Vice Dr. T. C. Byerly)
Assistant Director, Science and Education Staff
Department of Agriculture
Washington, D.C. 20250

*Ralph E. Ulmer
Special Assistant to the Director,
Office of Facilities
National Aeronautics and Space
Administration Headquarters
Washington, D.C. 20546

The directory reports may be viewed as consisting of two major groups, *laboratories proper*, which are commonly associated with the R&D spectrum of activities, and *subsidiary organizations*. The major function of the latter is to provide technical services and support to laboratories proper, as is illustrated by the work of tracking stations, pilot plants, etc. Warehouses, machine shops, *et. al*, are not included.

The scope and complexity of work performed at certain subsidiary organizations often require disciplinary and technical skills and sophisticated equipment comparable to those found at laboratories proper doing advanced research and development. Accordingly, in practice, the dividing line between the two categories is not clear; hence, responding agencies were not consistent in their classification. Also, as noted above, DOD routinely designates as laboratories its principal R&D technical service and supporting installations, e.g., Proving Grounds, Test Ranges, etc. In view of the preceding, all of the respective agencies' installation reports are assembled as a unit, without regard to the classification entry made on the survey report form.

The survey scope was further clarified by listing in the survey reporting instructions the types of subgroups of installations to be included. This procedure was preferred because the conventional definitions do not clearly identify the parameters of the laboratory proper and subsidiary organizations. The controlling rationale of the inventory scope description was to include only (i.e., all) federally owned, directly controlled organizational entities which are normally assigned R&D centered responsibilities, regardless of size and geographic location.

The explicit exclusions consist primarily of security classified R&D establishments and those organizations whose programs have only a marginal R&D involvement. One specific guideline for installation exclusion is the employment of less than one full-time professional. However, installations on standby (mothballed) are included.

There are several common practices which, if avoided, will make the directory much easier to use: First, referring to an R&D installation element as an independent entity misleads one to assume it is listed in appendix C; e.g., the "Center for Short-Lived Phenomena," recurrently mentioned by the media without noting that its headquarters are in the Smithsonian Astrophysical Observatory (cf. report p. 939). Another type of identification difficulty is caused by installation name changes because both the old and new names remain in use for indefinite periods. One example is the Army Cold Regions R&D Laboratory which has just regained this name after having been known for some time as the Terrestrial Science Center. Further, a variety of other organizations whose activities are scientific and technical in nature have been given names which erroneously suggest direct R&D involvement. An example is the Navy Metrology Engineering Center, Pomona, California, whose primary mission is to serve as a calibration resource and is not even a subsidiary organization providing direct R&D technical support and services. For this reason, a report for the center was not supplied by DOD.

Alphabetical Arrangement of Directory Reports

As noted in the introduction, the survey reports are arranged alphabetically, by agency and major organizational echelons, e.g., DOD (Navy), HEW (NIH), etc. Alphabetical grouping below these primary organizational levels was not feasible because many reports do not include the information required for such classification. However, to reduce the total number of report forms for many small installations, Agriculture adopted a special procedure whereby the majority of its reports and installations are grouped by ARS Divisions and Forest Service Regions.

Further, in order to bring together an agency's reports for a common program area or to otherwise simplify the alphabetizing process, the location designation of an installation's name or its agency affiliation was generally dropped; e.g., Reno, Salt Lake City, etc., and "Air Force," "Army," and "Navy," etc. The alphabetizing procedure sometimes resulted in listing junior or less important agency installations ahead of others in the directory; for example, the report for the Institute for Basic Standards, NBS, Colorado, precedes its parent establishment at Gaithersburg, Maryland.

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*Also members of the Special Advisory Committee

Reporting Installation Data—The Directory Index

Although the index lists an appreciable number of installation references for the respective COSATI fields and groups, more would have been included if respondents had consistently listed individual R&D projects in accordance with the illustration on the specimen form in the reporting instructions. The omission of project statements, representative of an installation's actual major work activities during the preceding year, deprived respondents of a vehicle for using the COSATI codes to readily identify more completely their R&D resources. As a consequence, although the directory index will enable the perceptive user to identify all or most of the important R&D resources, it is not fine-grained and precise. Agency reporting of installation functions and activities and major equipment also was quite uneven. The index proper can be used most effectively by referring initially to the COSATI fields and groups listed on the first page of the index. This will aid in getting broadly oriented to the subject fields related to the resource areas sought by the directory user.

The personnel and funding obligations (survey report form, items 5 and 6) were collected to supplement information on major functions and activities and major equipment (items 7 and 8). However, because these data were intended as supplementary indicators of the magnitudes and character of an installation's overall efforts, the conventional precision of statistical reporting was not required.

Despite the gross characteristics of the personnel data, they can be an important aid in appraising an installation's probable level or range of expertise. This is particularly true when considering the activity statements of more than one installation in comparable or related R&D areas. However, when comparing installation personnel totals, or using these totals to appraise R&D activity levels, variations in the respondent's interpretations of the reporting instructions should be borne in mind. For example, the USDA personnel totals are generally inclusive only of professional, technical, and administrative staff directly assigned to R&D projects. The reporting instructions do not specify this degree of restriction.

The FY 1969 dollar obligation data detail (item 6), although also limited in scope, provides another general measure of the level of R&D activity at the installation site. However, one limitation on the usefulness of some of the data reported is due to a not infrequent misunderstanding about including funds received from agency accounts not labeled research and development, from other organizational elements of the parent and from other agencies. Thus, some funds received from other agencies have been included in the extramural total (item 6B), even though intended for onsite R&D activities. Actually, item 6B entries were intended only to identify the magnitude of offsite research and development for which the installation had administrative responsibility.

Installation Count and Associated Factors

As noted in the introduction the directory includes 486 separate reports for 723[3] R&D installations. This difference in numbers is due to the earlier noted USDA composite reports by program divisions (ARS) and regions (Forest Service). The 723 installation count is not absolute and should be used with caution even though no reportable R&D laboratory of consequence is believed to be unenumerated. The need for cautious use of the directory's total installation count is based on considerations such as the following:

Because all laboratories at the same location and under the same program jurisdiction were defined as a single reporting unit (for a count of one), a theoretical short count may have resulted in some instances. NASA centers, for example, may consist of many conventional R&D laboratories. However, because all of the latter are under the jurisdiction of the center director and no single center laboratory is reported to be accountable directly to a separate program jurisdiction at NASA's headquarters or an intermediate, offsite supervisory echelon, all of the R&D establishments at each NASA center count as only a single installation. A different treatment of the center enumeration could have increased the count of installations by an appreciable margin.

Also illustrative of the effect of locational and jurisdictional critera upon the installation count is the situation at establishments such as DOD's Wright-Patterson Air Force Base, where more than one R&D installation may be under the overall, offsite jurisdiction of a single R&D service. However, because intermediate responsibility for the individual laboratories may be assigned to lower echelons, such as Service Commands, e.g., Materiel Command, Ordance Command, etc., individual reports were supplied for laboratories responsible to different commands in the same service and at the same base. This procedure has the effect of increasing the installation total.

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[3] Exclusive of 5 research vessel listings and 3 individual reports.

Underenumeration of subsidiary organizations appears to have occurred to a much greater extent than overreporting laboratories or subsidary installations because of different interpretations of the reporting instructions. The AEC, for example, advised that "Several of the [installations] involve activities [that are] carried out at more than one geographical location. Since no portion of any of these FFRDC's is operated as a subsidiary of any other portion, a single form is used for each AEC-sponsored FFRDC. The location shown in item 3 is that at which the majority of employees regularly work; other locations, if any, are described under item 9." This interpretation overlooks the survey specification that R&D activities at permanent, separate geographic locations (as compared with being physically housed in different, but proximate areas) should be reported individually.

The DOD did not report an undetermined number of subsidiary installations because the constraints of the survey reporting schedule and a related independent, in-house enumeration already in being would have led to serious overloads and unacceptable delays. For security considerations, certain subsidiary installations also were not reported. The DOD survey reports for Army Test and Review Boards were deleted after submission. The boards perform the specialized function of service testing of items developed for use by the Army and their assignment is of a limited duration. They are commonly located at military bases not normally equipped with conventional R&D facilities.

By definition, State Agricultural Experiment Stations were not reported because they are not federally owned or directly controlled even though Federal employees may work at these locations. The reporting of mobile R&D resources, mostly subsidiary-type organizations, was complicated by a variety of factors. These facilities are generally not looked upon as conventional laboratory-type installations by the respondent agencies. Thus, with the exception of separate reports for a few installations such as ESSA's Research Flight Facility and NSF's National Scientific Balloon Facility, aircraft-housed R&D laboratories are typically identified as equipment (item 8) in the report for the installation where they are based. The Electronics Laboratories, DOD (Army), for example, reports "... upwards of 50 aircraft for test-flying developmental devices." Oceanographic research vessels and other ships, equipped to serve as mobile platforms for R&D teams, are reported more extensively. Most of these vessels are listed, with performance related data, on a consolidated basis in reports captioned *research vessels.* The reports are interfiled alphabetically with the respective agencies' other reports.

Viewed in its entirety, the *Directory of Federal R&D Installations* is, hopefully, a commendable product of an experimental effort whose potential was originally viewed with considerable skepticism. Enumeration and reporting irregularities and omissions, notwithstanding, the directory contains a considerable amount of usable information. The directory can assist in serving such varied needs as the R&D administrator looking for science and technology potential; policy planners and administrators concerned with the Nation's future requirements; and science managers in developing guidelines and policy for the establishment, operation, and closing of R&D installations.

Inasmuch as the directory is an inventory of publicly owned resources, it represents a potential tool for analysis of contemporary questions. Such issues include the extent of intra-agency use of R&D installations; the utilization of intramural versus extramural resources; the maintenance of R&D installations with parallel missions; critical size of laboratories as a function of mission and disciplinary areas, etc.

Appendix B

Survey Reporting Instructions

NSF Form 483
Instruction Sheet

NATIONAL SCIENCE FOUNDATION

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

REPORTING INSTRUCTIONS

INTRODUCTION

The Chairman of the Federal Council for Science and Technology has asked the National Science Foundation to prepare an inventory and directory of Federal Government-owned research and development[1] installations. In compliance with this request, the Foundation is seeking the cooperation of the Federal agencies and laboratory administrators for the preparation of a brief descriptive statement for each laboratory in which research is performed.

The survey objectives are to obtain an inventory and prepare a directory which will be a guide for prospective users seeking to locate specific research and development facilities and capabilities. It is anticipated that the user will not always be able to identify the appropriate laboratory from the directory alone. However, he should be able to narrow his search by identifying installations which, in terms of function, geographic location, types of equipment, staffing, etc., appear suited to his needs. More detailed information might then be sought from the selected installations.

To facilitate use of the directory, it will include an index based on significant characteristics reported on the survey forms. Accordingly, the survey calls for classifying the principal laboratory activities according to the COSATI SUBJECT CATEGORY LIST[2] developed by the Committee on Scientific and Technical Information. The COSATI codes, as reported, will be the basis of the directory subject index.

SURVEY PROCEDURE

Each Federal agency is responsible for submitting completed and verified survey forms for each installation under its jurisdiction and within the scope of the survey, as of June 30, 1969. Completed forms will be forwarded to NSF by agency headquarters.

SURVEY SCOPE

The enumeration should include all installations in the following categories, regardless of size or geographic location:

(1) Federal Government-owned and Federal Government-operated R&D laboratories;

(2) Federal Government-owned, nonindustrial, subsidiary installations (either Federal Government-operated or contractor-operated) providing direct, technical support and service to R&D laboratories.

Subsidiary installations, such as field experiment stations, tracking stations, etc., provide technical support and services to R&D laboratories. Their program is generally determined by the laboratories serviced; and

(3) Federally Funded Research and Development Centers (FFRDC's).[3]

The following list of inclusions and exclusions illustrates the scope of the survey. However, a completed form should be submitted if an agency is uncertain whether a particular facility falls within the survey scope.

INCLUSIONS

(1) R&D laboratory and subsidiary installations in operation on June 30, 1969;

(2) Installations on standby (mothballed);

(3) Manned mobile surface, sub-surface and airborne research and development laboratories and subsidiary organizations, such as oceanographic research vessels, seaborne mission control centers and tracking stations;

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[1] Including RDT&E as defined by the Department of Defense.

[2] See COSATI SUBJECT CATEGORY LIST (DoD MODIFIED) AD 624 000, Oct. 1965, U.S. Department of Commerce Clearinghouse, Springfield, Virginia 22151.

[3] The *Master List of Federally Funded R&D Centers*, amended June 1, 1968, was distributed by the Chairman, Federal Council for Science and Technology, under cover of memorandum dated June 1, 1968. FFRDC enumeration is required only by the Department of Defense, Atomic Energy Commission, National Aeronautics and Space Administration, and National Science Foundation.

(4) R&D installations staffed primarily by military personnel;

(5) Research and development laboratories or subsidiary organizations physically located in the parent Federal agency headquarters;

(6) Hospital research laboratories, for example, the Medical Research and Nutrition Laboratory, Fitzsimmons General Hospital, Denver, Colorado; and

(7) Social and behavioral science research laboratories.

EXCLUSIONS

(1) Purely administrative or headquarters organizations at geographic locations apart from laboratories;

(2) Field stations and comparable types of subsidiary units whose principal mission is routine collection of data or providing services which do not require a technically trained professional holding a college degree or the equivalent;

(3) Hospital clinical laboratories primarily concerned with patient care;

(4) State agricultural experiment stations cooperating with the U.S. Department of Agriculture.

Generally speaking, there should be a survey report for each installation under a single technical director located at the site. An installation consisting of two or more organizational subunits at the same location and under a single on-site technical director should be treated as a unit. An R&D installation at a different geographical location from the parent installation should be enumerated separately.

Laboratory nontechnical service and support activities, such as machine shops, warehouses, tugboats, etc. should be included as part of the R&D installation, and not enumerated separately as subsidiary organizations.

Security classified information will not be reported.

ENUMERATION INSTRUCTIONS

Please read carefully all instructions before making any entries. Use one NSF Form 483 (SFL-1) for each research and development or subsidiary installation.

Installation

Enter the complete official name.

Agency or Department

Enter the name of the Government agency or department.

If program supervisory jurisdiction or sponsorship is assigned to an agency suborganization, enter the latter's name in parenthesis, e.g., DOD (Navy); HEW (PHS); NASA (Goddard), etc.

1. *Type of Government-Owned Installation*

Identify the type of installation reported. Check one box.

1. A., B. (1) *Government-Operated*

The installation may include contractor on-site operations.

1. C. *Contractor*

Name the organization responsible for operating the installation, if contractor operated. If the contractor consists of a parent and an operating organization or related arrangement, report both, e.g., AT&T—BELL-COMM, AT&T—Western Electric Co., USAF—Military Sea Transport, etc.

2. *Director*

Name the official in charge of the installation.

2. A. *Technical Director*

Name the official with overall responsibility for directing the installation's scientific and technical programs. If same as Director, so indicate.

3. *Location*

If the nearest city is in an adjacent State, enter the State in parenthesis after the city. Use the installation's on-site headquarters location for the county and State entries

4. *P. O. Address*

Enter the complete, official mailing address.

4. D. *Telephone*

Enter the installation telephone number.

5. *Personnel*

Personnel entries should be as of June 1969. Because this item is intended only to provide a general indication of installation size and resources, numbers reported may be approximate.

5. A. *R&D Professionals (Total)*

Report all full-time and regularly scheduled, part-time scientific and engineering personnel (who meet Civil Service criteria for professional employees) primarily engaged in R&D activities, regardless of payroll titles or program sources of salary funds.

Include Federal-civilian, military, contractor, and all other categories, employed at the installation.

5. B. *All Other Personnel (Total)*

Report all others, including clerical, custodial, mechanical, and technical manpower. Include non-R&D professionals and staff personnel primarily responsible for administration.

6. *Funding (Approximate FY 1969 Dollar Obligations)*

For *intramural* and *extramural* activities respectively, report the approximate dollar total obligated by the installation for FY 1969. The totals should include all funds, regardless of their source or whether specifically identified for R&D activities. If funding for FY 1969 is atypical, asterisk (*) and report under Item 9. *Comment and Publication References.*

7. *Major Functions and Activities (Include COSATI Codes)*

(See specimen form attached)

Summarize the principal research and development purposes served by the installation. List the most important programs and activities during FY 1969. Important new assignments should also be listed. The programs and activities reported should broadly represent the major portion of the installation's total commitment.

COSATI Codes [1]

Following each program or activity, append in parenthesis the COSATI Field and Group codes and the terms which identify the activities most closely. More than one code may be listed for each activity.

7. A. *Additional COSATI Codes*

Identify additional programs and activities (second level of importance) not listed above, if desired.

8. *Major Equipment*

Provide a general description of the installation's equipment and associated facilities. In addition, list and further identify those items of R&D equipment and instrumentation systems on hand which are not available at most installations engaged in similar activities. Important equipment not in use should be listed and so identified.

9. *Comment and Publication References*

Use this space to amplify the information reported above; for example, report special capabilities (potential applications of existing resources) not required by the laboratory's existing missions and programs.

List readily available public documents or other sources of information which describe the installation's resources, programs, and facilities.

Report any special procedural requirements for obtaining access to existing resources, etc.

10. *Date of Report*

Enter the month and year.

11. *R&D Classification of Laboratory*

To be completed by parent agency.

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[1] See footnote reference [2] on p. 1.

U. S. Army Natick Laboratories — INSTALLATION
Dept. of Defense (Army) — AGENCY OR DEPT.

1. TYPE OF FEDERAL GOVERNMENT-OWNED INSTALLATION:
A. R&D LABORATORY
(1) ☒ GOVERNMENT-OPERATED
(2) ☐ FFRDC
(3) ☐ CONTRACTOR-OPERATED
B. SUBSIDIARY R&D ORGANIZATION
(1) ☐ GOVERNMENT-OPERATED
(2) ☐ CONTRACTOR-OPERATED
C. CONTRACTOR:

2. DIRECTOR: Felix J. Gerace, CG.
A. TECHNICAL DIRECTOR: Dr. D[illegible] H. Sieling

3. LOCATION: A. Natick (Nearest City) B. Middlesex (County) Massachusetts (State)

4. P. O. ADDRESS: U. S. Army Natick Laboratories
A. Natick (City) B. Mass. (State) [illegible]17 653-1000 (Telephone (Area Code & No.)

5. PERSONNEL (As of June 1969):
A. R&D PROFESSIONALS (Total): 580
B. ALL OTHER PERSONNEL ([illegible]tal): 980

6. [illegible] Dollar Obligation):
A. 19.5 million
[illegible]tal): B. 3.7 million

7. MAJOR FUNCTIONS AND ACTIVITIES [illegible]

Conducts research, enginee[illegible]nt to provide military personnel with advanced equipment [illegible]pe with natural and manmade hazards (15-07 Military Scien[illegible]rop; 06-08 Biological and Medical Sciences - Food).

Although resea[illegible]ial requirements are met in the areas of rations, clo[illegible]y equipment, containers, field support equipment, tent[illegible]d welfare items (15-05 Military Science - Logisti[illegible] Supplies).

Investiga[illegible]ochromic 1-Aryl-2 Nitroalkanes (07-05 Chemistry - Radiation [illegible] - Particle Radiation Effects),

Effect of oxygen on freeze dried food (06-08 Biological and Medical Science - Food - Processing),

Low altitude airdrop systems for personnel, supplies and equipment (15-07 Military Science - Tactics - Support),

Joint Operational Requirements (MC/Army) for infantry torso armor (19-04; 19-06 Ordnance - Armor - Equipment),

Reliability of flexible packaging for food (06-08 Bio-science - Food - Packaging).

A. ADDITIONAL COSATI CODES: 13-04 - Industrial Eng. - Containers and Packaging - Methods
13-13 - Civil Eng. - Structural - Eqpt. and Supplies;
15-05 - Mili Sci - Logistics - Clothing.

SPECIMEN

SURVEY OF FEDERAL GOVERNMENT RESEARCH AND DEVELOPMENT LABORATORIES

Conducted By THE NATIONAL SCIENCE FOUNDATION For The
FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

SFL 1

8. MAJOR EQUIPMENT:

The laboratory has a wide range of special equipment and specialized facilities for developing and testing materials required for man to accommodate to different physical environments.

Special Equipment:

1. Solar Furnace: Capacity - (Detail to be supplied by respondent),

2. Arctic and Tropic Climatic Chamber: For weather simulation and personnel testing: 60 feet long; 11 feet wide; 15 feet h[illegible] - accommodates up to 25 persons,
Temperature ranges: 70° F to -70° F; 0° F to 165°
Wind velocity up to 40 m.p.h.,

3. Food Irradiation Facility: Irradiation sour[illegible] of cobalt 60; initial load 1.1 megacuries,

4. Radiation Facility: Equipped with [illegible](24 million electron volts, (18 KW), and cobalt 6[illegible]mma rays from 1.3 million curies of cobalt 60.

9. COMMENT AND PUBLICATION REFERENCE[illegible]

The Natick Laboratorie[illegible]gaged in development activities, with important effor[illegible]ic and applied research areas.

Command relatio[illegible] activity reporting directly to the [illegible] of R & D, Headquarters, AMC.

Have add[illegible] (not capacity) to assist FDA product analyses.

Ref: 1. [illegible]atick Laboratories, Tech. Report 67-1, Bibliography [illegible]cal Publications and Papers (1-65 to 6-66), etc.

2. Labo[illegible]atory Brochures: Natick Laboratories
Subjects (various) Food, Clothing, etc.

SPECIMEN

10. DATE OF REPORT: September 1969

APPENDIX C

Alphabetical List of Federal R&D Installations, by Agency

Agency or Department	Page
AGRICULTURE	
Agricultural Research Service	3
Agricultural Engineering Research Stations	3
Agricultural Engineering Laboratory, Forest Grove, Ore.	3
Agricultural Engineering Research Division, Beltsville, Md.	3
Agricultural Engineering Research Laboratory, Tifton, Ga.	3
Agricultural Research Station, Salinas, Calif.	3
Cotton Ginning Laboratory	3
Cotton Ginning Research Laboratory	3
Cotton Research Station, Shafter, Calif.	3
Entomology Research Laboratory, Yakima, Wash.	3
Everglades Experiment Station	3
Federal Experiment Station, St. Croix, V.I.	3
Field Laboratory for Tung Investigations, Poplarville, Miss.	3
Insects Attractant Laboratory, Gainesville, Fla.	3
Livestock Insect Laboratory, Kerrville, Texas	3
South Central Poultry Research Laboratory	3
South Plains Cotton Ginning Research Laboratory	3
Southeastern Cotton Ginning Research Laboratory	3
Southeastern Fruit and Tree Nut Research Station, Byron, Ga.	3
Southeastern Poultry Field Station	3
Southern Grain Insects Research Laboratory	3
Southern Piedmont Soil Conservation Research Center	3
Tillage Machinery Laboratory	3
Tobacco Research Station, Oxford, N. C.	3
Western Cotton Insects Research Laboratory, Tucson, Ariz.	3
Animal Disease and Parasite Division	5
Animal Disease and Parasite Research Stations	7
Animal Disease and Parasite Laboratory	7
Animal Disease Research Laboratory, Denver, Colo.	7
Endoparasite Vector Pioneering Research Laboratory	7
Livestock Insect Laboratory, Kerrville, Texas	7
Poisonous Plant Research Laboratory	7
Regional Parasite Research Laboratory	7
Regional Poultry Research Laboratory, E. Lansing, Mich.	7
South Central Poultry Research Laboratory	7
Southeastern Poultry Field Station, Athens, Ga.	7
SW Veterinary Toxicol. and Livestock Insect Research Lab.	7
Animal Husbandry Division	9
Animal Husbandry Research Stations	11
Beef Cattle Research Station	11
Brooksville Beef Cattle Research Station	11
Dairy Cattle Experiment Station	11
Fort Reno Livestock Research Station	11
Fort Robinson Beef Cattle Research Station	11
Iberia Livestock Experiment Station	11
Meat Animal Research Center	11
Poultry Research Laboratory	11
Range Livestock Experiment Station	11
Regional Poultry Research Laboratory, E. Lansing, Mich.	11
South Central Poultry Research Laboratory	11
Southeastern Poultry Field Station, Athens, Ga.	11
Western Sheep Breeding Laboratory	11
Boll Weevil Research Laboratory, State College, Miss.	13
Consumer and Food Economics Research Laboratory	15
Crops Research Division	17
Crops Research Stations	19
Agricultural Research Station, Salinas, Calif.	19
Aquatic Weeds Research Laboratory	19
Barley and Malt Laboratory	19
Big Bend Horticultural Laboratory	19
Border Belt Tobacco Research Station	19
Brush Control Research Laboratory	19
Cheyenne Horticultural Field Station	19
Citrus, Vegetable, Soil and Water Laboratory, Weslaco, Tex.	19
Cotton Field Station	19
Cotton Research Station, Shafter, Calif.	19
Crops Research Laboratory, Ft. Collins, Colorado	19
Crops Research Laboratory, College Sta., Texas	19
Crops Research Laboratory, Logan, Utah	19
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Plum Brook Station 877
Sacramento Test Facility 879
Santa Susana Test Facility 881
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Wallops Station 897
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- Aeromedical Research Unit, DOD (Army)
- Enviromental Biology Laboratory, TVA
- Gulf Coast Water Hygiene Laboratory, HEW (CPEHS)
- Industrial Hygiene and Air Quality Laboratory, TVA
- Marshall Space Flight Center, NASA
- Metallurgy Rsch. Lab., Tuscaloosa, Interior, (Bu. Mines)
- Missile Command Laboratories, DOD (Army)
- National Fertilizer Development Center, TVA
- Radiological Hygiene Laboratory, TVA
- Regional Parasite Research Laboratory USDA (ARS, Animal Disease and Parasite Research Div.)
- SE Radiological Health Laboratory, HEW (CPEHS)
- SE Fish Cultural Lab., Selma, Interior, (Bu. Sport Fish.)
- Tillage Machinery Laboratory, Auburn, USDA (ARS, Agricultural Eng. Rsch. Division)

ALASKA

- Arctic Health Research Center, HEW (CPEHS)
- Arctic Research Laboratory, DOD (Navy)
- Arctic Test Center, DOD (Army)
- Biological Lab., Juneau, Interior (Bu. Comm. Fish.)
- Exploratory Fish. & Gear Rsch. Base, Juneau, Interior, (Bu. Comm. Fish.)
- Forestry Sciences Laboratory, College, USDA (Forest Service, Pac. NW For. & Range Exp. Station)
- Institute of Northern Forestry, Juneau, USDA (Forest Svc., Pac. NW Forest & Rge. Exp. Station)
- Technological Lab., Ketchikan, Interior, (Bu. Comm. Fish.)

ARIZONA

- Archeological Ctr., SW, Globe, Interior (Nat'l. Park Svs.)
- Brush Control Research Laboratory, Flagstaff, USDA (ARS, Crops Research Division)
- Center for Astrogeology, Flagstaff, Interior (Geo. Survey)
- Electronic Proving Ground, DOD (Army)
- Entomology Rsch. Lab., Mesa, USDA (ARS, Ento. Rsch. Div.)
- Forest Hydrology Laboratory, Tempe, USDA (Forest Svc ., Rocky Mt. For. & Range Exp. Sta.)
- Forestry Sciences Laboratory, Flagstaff, USDA (Forest Service, Rocky Mt. For. & Range Exp. Sta.)
- Health Program Systems Center, HEW (HSMHA)
- Kitt Peak National Observatory, NSF
- Phoenix Laboratory, HEW (HSMHA)
- Southwest Rangeland Watershed Rsch. Center, Tucson, USDA (ARS, Soil & Water Conservation Rsch. Div.)
- Water Conservation Laboratory, Phoenix, USDA (ARS, Soil & Water Conservation Rsch. Division)
- Western Cotton Insects Research Laboratory, Tucson,* USDA (ARS, Agricultural Eng. Rsch. Division
    - Crops Research Division
    - Entomology Research Division)
- Yuma Proving Ground, DOD (Army)

ARKANSAS

- Fish Farming Experimental Station, Stuttgart, Interior (Bu. Sport Fish. & Wildlife)
- Research Support Center, Southern, VA
- South Central Reservoir Investigations, Interior, (Bu. Sport Fish. & Wildlife)

CALIFORNIA

- Aeronautical Research Laboratory, DOD (Army)
- Aerospace Corporation, DOD (Air Force)
- Aerospace Recovery Facility, DOD (Navy)
- Agricultural Research Station, Salinas,* USDA (ARS: Crops Research Division
    - Engineering Research Division)
- Ames Research Center, NASA
- Aviation Test Activity, DOD (Army)
- Canoga Park Facility, NASA
- Civil Engineering Laboratory, DOD (Navy)
- Combined Systems Test Stand, NASA
- Cotton Research Station, Shafter,* USDA (ARS: Agricultural Eng. Rsch. Division
    - Crops Research Division)
- Date and Citrus Station, Indio, USDA (ARS, Crops Rsch. Div.)
- Deep Space Network, NASA
- Downey Industrial Plant, NASA
- Dried Fruit and Nut Research Laboratory, Fresno,* USDA (ARS: Entomology Research Division
    - Market Quality Research Division)
- Earthquake Mechanisms Laboratory, Commerce (ESSA)
- Edward F-1 Engine Test Facility, NASA

STATE

CALIFORNIA (Continued)

- Edwards Test Station, NASA
- Electronics Laboratory Center, DOD (Navy)
- Entomology Research Laboratory, Riverside, USDA (ARS, Entomology Research Division)
- Fishery Oceanographic Center, Interior (Bu. Comm. Fisheries)
- Flight Research Center, NASA
- Flight Test Center, DOD (Air Force)
- Fog Chamber, Transportation (FAA)
- Forest Fire Lab., Riverside, USDA (Forest Service, Pacific SW Forest & Range Exp. Station)
- Forestry Sciences Laboratory, Arcata, USDA (Forest Service, Pacific SW Forest & Range Exp. Station)
- Forestry Sciences Laboratory, Redding, USDA (Forest Service, Pacific SW Forest & Range Exp. Station)
- Fresno Field Station, USDA (ARS, Soil and Water Conservation Rsch. Division)
- Fruit and Vegetable Chemistry Laboratory, USDA (ARS)
- Horticultural Field Station, Fresno,* USDA (ARS: Crops Research Division
    - Market Quality Research Division)
- Horticultural Field Station, La Jolla, USDA (ARS, Crops Rsch. Div.)
- Jet Propulsion Laboratory, NASA
- Lawrence Radiation Laboratory, Berkeley, AEC
- Lawrence Radiation Laboratory, Livermore, AEC
- Lompoc Soil and Water Conservation Field Station, Lompoc, USDA (ARS, Soil and Water Conservation Rsch. Division)
- Marine Minerals Technology Center, Interior (Bu. Mines)
- Market Quality Research Laboratory, Pomona, USDA (ARS, Market Quality Research Division)
- Medical Neuropsychiatric Research Unit, DOD (Navy)
- Medical Research Unit, San Francisco, DOD (Army)
- Medical Research Unit No. 1, DOD (Navy)
- Missile Center, DOD (Navy)
- Ocean Research Laboratory, Interior (Bu. Comm. Fisheries)
- Pacific Coast Region Center, Interior (Geological Survey)
- Pacific Forest & Range Experiment Sta., Berkeley, USDA (ARS, Crops Research Division)
- Pacific Missile Range, DOD (Navy)
- Pacific SW Experiment Station, Berkeley, USDA (Forest Service, Pacific SW Forest & Range Exp. Station)
- Personnel Research Activity, DOD (Navy)
- Petroleum Research Office, Interior (Bu. Mines)
- Plant Introduction Station, Chico, USDA (ARS, Crops Research Division)
- Radiological Defense Laboratory, DOD (Navy)
- Rand Corporation, DOD (Air Force)
- Research Support Center, Western, VA
- Rocket Propulsion Laboratory, DOD (Air Force)
- Sacramento Test Facility, NASA
- Salinity Laboratory, Riverside, USDA (ARS, Soil & Water Conservation Research Division)
- Santa Susana Test Facility, NASA
- Seal Beach Assembly Facility, NASA
- Sierra Nevada Aquatic Rsch. Lab., Interior (Bu. Sport Fish.)
- Southwestern Irrigation Field Station, Brawley,* USDA (ARS: Crops Research Division
    - Soil & Water Conserv. Research Div.)
- Space Systems Activity, DOD (Navy)
- Stanford Linear Accelerator Center, AEC
- Sycamore Canyon Test Site, NASA
- Table Mountain Facility, NASA
- Technological Laboratory, Terminal Island, Interior (Bu. Comm. Fish.)
- Test Facility, Chula Vista, Interior (Office of Saline Water)
- Tiburon Marine Laboratory, Interior (Bu. Sport Fish.)
- Transportation and Facilities Research Lab., Fresno, USDA (ARS, Transportation & Facilities Rsch. Division)
- Undersea R&D Center, DOD (Navy)
- Weapons Center, DOD (Navy)
- Western Test Range, DOD (Air Force)
- Western Test Range, NASA
- Western Utilization Rezearch Laboratory, USDA (ARS)

COLORADO

- Animal Disease Research Laboratory, Denver,* USDA (ARS: Animal Disease & Parasite Research Division
    - Entomology Research Division)
- Aquatic Weeds Rsch. Lab., Denver, USDA (ARS, Crops Research Div.)
- Central Great Plains Field Station, Akron, USDA (ARS, Soil and Water Conservation Rsch. Division)
- Crops Research Laboratory, Fort Collins, USDA (ARS, Crops Research Division)
- Engineering and Research Center, Interior (Bu. Reclamation)
- Fort Collins Laboratories, HEW (HSMHA)
- Institute for Basic Standards, Boulder, Commerce (NBS)
- Medical Research and Nutrition Laboratory, DOD (Army)
- Mine Systems Engineering Group, Interior (Bu. Mines)
- Mining Research Center, Interior (Bu. Mines)
- National Center for Atmospheric Research, NSF

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*More than one USDA-ARS R&D installation by the same name, but under different jurisdictions at this location.

STATE

COLORADO (Continued)

National Seed Storage Laboratory, Fort Collins,
USDA (ARS, Crops Research Division)
Research Laboratories, Commerce (ESSA)
Rocky Mt. Forest & Range Exp. Sta., Ft. Collins, USDA
(Forest Svc., Rocky Mt. For. & Range Exp. Sta.)
Rocky Mountain Region Center, Interior (Geological Survey)
Frank J. Seiler Research Laboratory, DOD (Air Force)
Soil and Water Conservation Rsch. Lab., Ft. Collins,
USDA (ARS, Soil and Water Conserv. Rsch. Div.)
Wildlife Research Center, Interior (Bu. Sport Fish.)

CONNECTICUT

Biological Laboratory, Interior (Bu. Comm. Fish.)
Forest Insect and Disease Laboratory, Hamden, USDA
(Forest Service, NE Forest Experiment Station)
Research Support Center, VA
Submarine Medical Center, DOD (Navy)
Underwater Sound Laboratory, DOD (Navy)

DELAWARE

Poultry Research Laboratory, Georgetown, USDA
(ARS, Animal Husbandry Research Division)

DISTRICT OF COLUMBIA

Alcohol, Tobacco & Firearms Div. Lab., Treasury (IRS)
Behavioral Science Research Laboratory, DOD (Army)
Bird and Mammal Laboratory, Interior (Bu. Sport Fish.)
Bureau of Science, HEW (CPEHS)
Center for Research in Social Systems, DOD (Army)
Cigarette Testing Laboratory, FTC
Dairy Products Research & Development Lab., USDA (ARS,
Eastern Utilization Research Division)
Dental Rsch. Institution, Walter Reed AMC, DOD (Army)
Division of Special Mental Health Research, HEW (HSMHA)
Forestry Research Headquarters, USDA (Forest Service)
Forestry Services Laboratory, USDA (Forest Service,
Forestry Research Headquarters)
Geological Survey Headquarters, Interior (Geological Survey)
Harry Diamond Laboratories, DOD (Army)
Medical Biomechanical Research Laboratory, DOD (Army)
National Arboretum, USDA (ARS, Crops Research Div.)
Natl. Center for Antibiotic & Insulin Analysis, HEW (CPEHS)
Natl. Cntr. for Prevention & Control of Alcoholism, HEW (HSMHA)
National Institutes of Health, HEW (NIH)
National Museum of Natural History, Smithsonian Institution
Personnel Research and Development Laboratory, DOD (Navy)
Plant Pathology Laboratory, Interior (NPS)
Research and Development Laboratory, Post Office
Research and Technical Services Office Lab., Treasury
(Bu. Engraving & Printing)
Research Laboratories, VA
Research Laboratory, DOD (Navy)
Security Engineering Facility, DOD (Navy)
Special Testing & Rsch. Lab., Atty. Genl. (Justice)
Systematic Entomology Lab., USDA (ARS, Ento. Rsch. Div.)
Systematics Laboratory-Taxonomy, Interior (Bu. Comm. Fish.)
Textiles and Furs Laboratory, FTC
Walter Reed Army Inst. of Research, DOD (Army)
Wave Propagation Laboratory, Commerce (ESSA)
Winfred Overholser Div. of Clinical Rsch., HEW (HSMHA)

FLORIDA

Aerospace Medical Institute, DOD (Navy)
Air Proving Ground Center, DOD (Air Force)
Armament Laboratory, DOD (Air Force)
Atlantic Oceanographic & Meteorological Labs., Commerce (ESSA)
Atlantic Undersea Test and Evaluation Center, DOD (Navy)
Big Bend Horticultural Lab., Monticello, USDA
(ARS, Crops Research Division)
Biological Lab., St. Petersburg, Interior (Bu. Comm. Fish.)
Brooksville Beef Cattle Research Station, USDA
(ARS, Animal Husbandry Research Division)
Eastern Test Range, DOD (Air Force)
Everglades Expt. Sta., USDA (ARS, Agr. Eng. Rsch. Div.)
Forest Resources Laboratory, USDA
(Forest Service, SE Forest Experiment Sta.)
Fruit and Vegetable Products Laboratory, USDA
(ARS, Southern Utilization Research Div.)
Horticultural Field Laboratory, Orlando,* USDA
(ARS: Crops Research Division
Entomology Research Division
Market Quality Research Division)
Insect Attractants Laboratory, Gainesville,* USDA
(ARS: Agricultural Eng. Rsch. Division
Entomology Research Division
Market Quality Research Division)
Insects Affecting Man Research Laboratory, USDA
(ARS, Entomology Research Division)
Kennedy Space Center, NASA

STATE

FLORIDA (Continued)

Naval Stores & Timber Production Laboratory, USDA
(Forest Service, SE Forest Experiment Station)
Naval Stores Lab., USDA (ARS, Sou. Utilization Rsch. Div.)
Ordnance Unit, DOD (Navy)
Perrine Primate Laboratory, HEW (CPEHS)
Plant Introduction Station, Miami, * USDA
(ARS: Crops Research Division
Entomology Research Division
Market Quality Research Division)
Research Flight Facility, Commerce (ESSA)
Ship R&D Laboratory, DOD (Navy)
Sugarcane Field Station, Canal Point,* USDA
(ARS: Crops Research Division
Entomology Research Division)
Tobacco Insects Laboratory, USDA (ARS, Entomology Rsch. Div.)
Training Devices Center, DOD (Navy)
Transportation Technology & Packaging Investigations Laboratory,
USDA (ARS, Transportation & Facilities Rsch. Division)
Tropical Atlantic Biological Lab., Interior (Bu. Comm. Fish.)

GEORGIA

Agri. Eng. Research Lab., Tifton, USDA (ARS,
Agricultural Engineering Rsch. Division)
Antigen Laboratory Unit, HEW (HSMHA)
Archeological Center, Southeast, Interior (NPS)
Epidemiology Program, HEW (HSMHA)
Experimental Laboratory Unit, HEW (HSMHA)
Exploratory Fish & Gear Research Field Station,
Interior (Bu. Comm. Fish.)
Forestry Sciences Laboratory, Athens, USDA (Forest Service,
SE Forest Experiment Station)
Laboratory Division, Atlanta, HEW (HSMHA)
Laboratory Division, Savannah, HEW (HSMHA)
Market Quality Research Laboratory, Tifton, USDA
(ARS, Market Quality Research Division)
Peanut Marketing Research Laboratory, Dawson,*
USDA (ARS: Market Quality Research Division
Transportation & Facilities Research Div.)
Plant Introduction Station, Savannah, USDA
(ARS, Crops Research Division)
Southeast Water Laboratory, Interior (FWPCA)
Southeast Watershed Research Center, USDA
(ARS, Soil & Water Conservation Research Division)
Southeastern Agricultural Research Lab., Athens,* USDA
(ARS: Southeastern Utilization Rsch. & Dev. Division
Transportation and Facilities Rsch. Division)
SE Fish Control Laboratory, Interior (Bu. Sport Fish.)
Southeastern Fruit and Tree Nut Research Station, Byron,*
USDA (ARS: Agricultural Engineering Research Division
Crops Research Division
Entomology Research Division)
Southeastern Poultry Field Station, Athens,* USDA
(ARS: Agricultural Engineering Research Division
Animal Disease and Parasite Rsch. Division
Animal Husbandry Research Division)
Southern Forest Fire Laboratory, Macon, USDA
(Forest Service, Southeastern Forest Exp. Sta.)
Southern Grain Insects Research Laboratory, Tifton,*
USDA (ARS: Agricultural Engineering Rsch. Division
Crops Research Division
Entomology Research Division)
Southern Piedmont Soil Conservation Rsch. Center, Watkinsville,*
USDA (ARS: Agricultural Engineering Rsch. Division
Soil and Water Conservation Rsch. Division)
Stored Products Insects Rsch. & Development Lab., USDA
(ARS, Market Quality Research Division)
Toxicology Laboratory Branch,HEW (CPEHS)
Venereal Disease Research Laboratory, HEW (HSMHA)

HAWAII

Biological Laboratory, Honolulu, Interior (Bu. Comm. Fish.)
Joint Tsunami Research Group, Commerce (ESSA)
Mauna Loa Observatory, Commerce (ESSA)
Pacific Research Unit, HEW (NIH)

IDAHO

Entomology Research Lab., Twin Falls, USDA (ARS, Ento. Rsch. Div.)
Forestry Sciences Laboratory, Boise, USDA (Forest Service,
Intermountain Forest & Range Exp. Stations)
Forestry Sciences Laboratory, Moscow, USDA (Forest Service,
Intermountain Forest & Range Exp. Stations)
National Reactor Testing Station, AEC
Northwest Watershed Research Center, USDA
(ARS, Soil and Water Conservation Rsch. Division)
Snake River Conservation Research Center, USDA (ARS,
Soil and Water Conservation Research Division)
Western Sheep Breeding Lab., USDA (ARS, Animal Husb. Rsch. Div.)

ILLINOIS

Argonne National Laboratory, AEC
Construction Engineering Research Laboratory, DOD (Army)
Dental Research Institute, DOD (Navy)
Forestry Sciences Laboratory, Carbondale, USDA
(Forest Service, North Central Forest Exp. Station)
Medical Research Unit No. 4, DOD (Navy)
Midwest Market Pathology Lab., USDA (ARS, Mkt. Quality Rsch. Div.)

STATE

ILLINOIS (Continued)

National Accelerator Laboratory, AEC
Northern Utilization Research Laboratory, USDA (ARS)
Research Support Center, Midwestern, VA
Rock Island Arsenal Laboratories, DOD (Army)
Small Fruit Research Station, USDA (ARS, Crop Rsch. Div.)

INDIANA

Entomology Field Lab., USDA (ARS, Ento. Rsch. Div.)

IOWA

Ames Laboratory, AEC
National Animal Disease Laboratory, USDA (ARS)

KANSAS

Kansas City Laboratory, HEW (HSMHA)
Stored Products Insect Research Station, Manhattan,
USDA (ARS, Market Quality Research Division)

KENTUCKY

Addiction Research Center, HEW (HSMHA)
Forestry Sciences Laboratory, Berea, USDA (Forest Service,
Northeastern Forest Experiment Station)
Medical Research Laboratory, DOD (Army)

LOUISIANA

Alexandria Forestry Center, USDA (Forest Service,
Southern Forest Experiment Station)
Bee Stock Center, USDA (ARS, Entomology Rsch. Div.)
Boll Weevil Research Laboratory, Tallulah, USDA
(ARS, Entomology Research Division)
Cotton Insects Rsch. Lab., USDA (ARS, Ento. Rsch. Div.)
Iberia Livestock Experiment Station,
USDA (ARS, Animal Husbandry Research Division)
Michoud Assembly Facility, NASA
Pecan Field Laboratory, Shreveport,*
USDA (ARS: Crops Research Division
Entomology Research Division)
Slidell Computer Facility, NASA
Southern Forest Experiment Station, USDA (Forest Service,
Southern Forest Experiment Station)
Southern Utilization Research Laboratory, USDA (ARS)
Sugarcane Field Station, Houma,*
USDA (ARS: Crops Research Division
Entomology Research Division)

MAINE

Biological Lab., W. Boothbay Harbor, Interior (Bu. Comm. Fish.)
Timber Research Laboratory, USDA (Forest Service,
Northeastern Forest Experiment Station)

MARYLAND

Aberdeen Research & Development Center, DOD (Army)
Agricultural Engineering Research Division, USDA (ARS)
Air Resources Laboratories, Commerce (ESSA)
Air Test Center, DOD (Navy)
Animal Disease and Parasite Division, USDA (ARS)
Animal Husbandry Division, USDA (ARS)
Applied Physics Laboratory, Laurel, DOD (Navy)
Ballistic Research Laboratory, DOD (Army)
Biological Laboratories, DOD (Army)
Biological Lab., Oxford, Interior (Bu. Comm. Fish.)
Bureau of Radiological Health Lab., HEW (CPEHS)
Center for Computer Sciences & Technology, Commerce (NBS)
Center for Radiation Research, Commerce (NBS)
Center for Rsch. in Measurement Methods, Commerce (Census)
Coating & Chemical Laboratory, DOD (Army)
Consumer and Food Economics Rsch. Lab., USDA
(ARS, Consumer & Food Economics Rsch. Division)
Crops Research Division, USDA (ARS)
Development and Proof Services, DOD (Army)
Division of Biologics Standards, HEW (NIH)
Division of Computer Research & Technology, HEW (NIH)
Edgewood Arsenal Laboratories, DOD (Army)
Electromagnetic Compatibility Analysis Ctr., DOD (Air force)
Electronic Syst. Test & Evaluation Facility, DOD (Navy)
Engineering Development Laboratory, Commerce (Census)
Entomology Research Division, USDA (ARS)
Expl. Ord. Disposal Facility, DOD (Navy)
FCC Laboratory, Federal Comm. Commission
Forest Disease Laboratory, USDA (Forest Service,
Forestry Research Headquarters)
Forest Physiology Laboratory, USDA (Forest Service,
Forestry Research Headquarters)
Geodetic Research & Development Lab., Commerce (ESSA)

STATE

MARYLAND (Continued)

Geophysics Research Group, Commerce (ESSA)
Gerontology Research Center, HEW (NIH)
Goddard Space Flight Center, NASA
Human Engineering Laboratory, DOD (Army)
Human Nutrition Division, USDA (ARS)
Institute for Applied Technology, Commerce (NBS)
Inst. for Basic Standards, Gaithersburg, Commerce (NBS)
Inst. for Materials Rsch., Gaithersburg, Commerce (NBS)
Intramural Research Program, HEW (HSMHA)
Lab. for Environmental Data Rsch., Commerce (ESSA)
Limited War Laboratory, DOD (Army)
Manned Space Flight Network, NASA
Market Quality Research Division, USDA (ARS)
Materiel Syst. and Anal. Agency, DOD (Army)
Meat and Cheese Products Rsch. & Develop. Lab., USDA (ARS,
Eastern Utilization Research & Dev. Division)
Medical Research Institute, DOD (Navy)
Medical Research Unit, Ft. Detrick, DOD (Army)
Metallurgy Research Center, College Park, Interior (Bu. Mines)
Meteorological Satellite Laboratory, Commerce (ESSA)
Migratory Bird Populations Station, Interior (Bu. Sport Fish.)
NASA Communications Network, NASA
National Bureau of Standards, Commerce (NBS)
National Cancer Institute, HEW (NIH)
National Center for Fish Protein, Interior (Bu. Comm. Fish.)
National Heart and Lung Institute, HEW (NIH)
National Institute of Allergy & Infectious Disease, HEW (NIH)
Natl. Institute of Arthritis & Metabolic Diseases, HEW (NIH)
National Institute of Child Health & Human Dev., HEW (NIH)
National Institute of Dental Research, HEW (NIH)
National Institute of Neurological Diseases, HEW (NIH)
National Meteorological Center, Commerce (ESSA)
Naval Unit, Fort Detrick, DOD (Navy)
Nuclear Defense Laboratory, DOD (Army)
Office of Systems Development, Commerce (ESSA)
Ordnance Laboratory, DOD (Navy)
Patuxent Wildlife Research Center, Interior (Bu. Sport Fish.)
Plant Introduction Sta., Glenn Dale, USDA (ARS, Crops Rsch. Div.)
Radiation Biology Laboratory, Smithsonian Institution
Research Group, Hydrography & Oceanography, Commerce (ESSA)
Research, Office of Aeronaut. Charting & Cartog., Commerce (ESSA)
Satellite Experiment Laboratory, Commerce (ESSA)
Ship R&D Laboratory, DOD (Navy)
Soil and Water Conservation Rsch. Div., USDA (ARS)
Sounding Rocket Launch Sites, NASA
Space Tracking and Data Acquisition Network, NASA
Systems Development Office, Commerce (ESSA)
Toxicology Unit, DOD (Navy)
Transportation & Facilities Rsch. Laboratory, Hyattsville,
USDA (ARS, Transportation & Facilities Rsch. Division)
Veterinary Research Laboratory, HEW (CPEHS)

MASSACHUSETTS

Atmospheric Propagation Research Facility, NASA
Bedford Flight Facility, NASA
Biological Laboratory, Interior (Bu. Comm. Fish.)
Blood Research Laboratory, DOD (Navy)
Cambridge Electron Accelerator, AEC
Cambridge Research Laboratories, DOD (Air Force)
Clothing and Textile Research Unit, DOD (Navy)
Electronics Research Center, NASA
Exploratory Fishing & Gear Rsch. Base, Interior (Bu. Comm. Fish.)
Lincoln Laboratory, DOD (Air Force)
Materials and Mechanics Research Center, DOD (Army)
MITRE Corporation, DOD (Air Force)
Natick Laboratories, DOD (Army)
Northeast Radiological Health Laboratory, HEW (CPEHS)
Research Inst. of Environmental Med., DOD (Army)
Smithsonian Astrophysical Observatory, Smithsonian Institution
Technological Laboratory, Interior (Bu. Comm. Fish.)

MICHIGAN

Exploratory Fish. & Gear Rsch. Base, Interior (Bu. Comm. Fish.)
Forest Engineering Laboratory, USDA (Forest Service,
North Central Forest Experiment Station)
Great Lakes Fishery Laboratory, Interior (Bu. Comm. Fish.)
Motor Vehicle Pollution Control Laboratory, HEW (CPEHS)
Northern Hardwoods Laboratory, USDA (Forest Service,
North Central Forest Experiment Station)
Regional Poultry Research Laboratory, East Lansing,*
USDA (ARS: Animal Disease & Parasite Research Div.
Animal Husbandry Rsch. Division)
Tank Automotive Command Laboratories, DOD (Army)
Technological Laboratory, Interior (Bu. Comm. Fish.)

MINNESOTA

Metallurgy Research Center, Interior (Bu. Mines)
Mining Research Center, Interior (Bu. Mines)
National Center for Microbiological Analysis, HEW (CPEHS)
National Water Quality Laboratory, Interior (FWPCA)

STATE

MINNESOTA (Continued)

North Central Forest Experiment Station, USDA (Forest Service,
North Central Forest Experiment Station)
North Central Soil Conservation Rsch. Station, USDA
(ARS, Soil & Water Conservation Research Division)
Northern Conifers Laboratory, USDA (Forest Service,
North Central Forest Experiment Station)
Red River Valley Potato Rsch. Center, East Grand Forks,* USDA
(ARS: Eastern Utilization Rsch. Division
Market Quality Research Division
Transportation & Facilities Research Division)

MISSISSIPPI

Boll Weevil Resch. Lab., State College,* USDA
(ARS, Entomology Research Division
Crops Research Division
Agricultural Engineering Rsch. Div.
Soil and Water Conservation Rsch. Div.)
Cotton Ginning Research Lab., USDA (ARS,
Agricultural Engineering Research Division)
Engineer Waterways Experiment Station, DOD (Army)
Explo. Fish & Gear Rsch. Base, Interior (Bu. Comm. Fish.)
Field Lab. for Tung Investigations, Poplarville,*
USDA (ARS: Agricultural Engineering Rsch. Division
Crops Research Division)
Forest Hydrology Laboratory, Oxford, USDA
(Forest Service, Southern Forest Exp. Station)
Forestry Sciences Laboratory, State College, USDA
(Forest Service, Southern Forest Exp. Station)
Institute of Forest Genetics & Forest Insects & Dis. Lab.,
USDA (Forest Service, Southern For. Exp. Sta.)
Mississippi Test Facility, NASA
Sedimentation Laboratory, USDA
(ARS, Soil & Water Conservation Rsch. Division)
South Central Poultry Resch. Laboratory, State College,* USDA
(ARS: Agricultural Eng. Research Division
Animal Disease & Parasite Division
Animal Husbandry Research Division)
Southern Hardwoods Laboratory, USDA
(Forest Service, Southern For. Exp. Station)
Southern Regional Plant Pest Control Headquarters, USDA
(ARS, Entomology Research Division)
Sugar Crops Field Station, USDA (ARS, Crops Rsch. Division)
Technological Laboratory, Interior (Bu. Comm. Fish.)

MISSOURI

Biological Control of Insects Laboratory, USDA
(ARS, Entomology Research Division)
Fish-Pesticide Research Lab., Interior (Bu. Sport Fish.)
Metallurgy Research Center, Interior (Bu. Mines)
National Center for Drug Analysis, HEW (CPEHS)
North Central Watershed Research Center, USDA
(ARS, Soil & Water Conserv. Research Division)

MONTANA

Forestry Sciences Lab., Bozeman, USDA (Forest Service,
Intermountain Forest & Range Exp. Station)
Forestry Sciences Laboratory, Missoula, USDA (Forest Service,
Intermountain Forest & Range Experiment Station)
Northern Forest Fire Laboratory, Missoula, USDA
(Forest Service, Intermountain For. & Range Exp. Sta.)
Northern Plains Soil and Water Research Center, USDA
(ARS, Soil & Water Conservation Research Div.)
Range Livestock Experiment Station, USDA
(ARS, Animal Husbandry Research Division)
Rocky Mountain Laboratory, HEW (NIH)

NEBRASKA

Archeological Center, Midwest, Interior (NPS)
Forage Insects Lab., USDA (ARS, Ento. Research Division)
Forestry Sciences Laboratory, Lincoln, USDA (Forest Service,
Rocky Mt. Forest & Range Experiment Station)
Fort Robinson Beef Cattle Resch. Station, USDA
(ARS, Animal Husbandry Research Division)
Meat Animal Research Center, USDA
(ARS, Animal Husbandry Research Station)

NEVADA

Metallurgy Research Center, Interior (Bu. Mines)
Metallurgy Research Laboratory, Interior (Bu. Mines)
Nuclear Rocket Development Station, AEC/NASA**
Southwest Radiological Health Laboratory, HEW (CPEHS)

NEW HAMPSHIRE

Cold Regions Research and Engineering Lab., DOD (Army)
Forestry Sciences Laboratory, Durham, USDA (Forest Service,
Northeastern Forest Exp. Station)

STATE

NEW JERSEY

Air Propulsion Test Center, DOD (Navy)
Air Test Facility, DOD (Navy)
Eastern Market Pathology Laboratory, USDA
(ARS, Market Quality Research Division)
Electronics Engineering Center, Transportation (Coast Guard)
Electronics Laboratories, DOD (Army)
Entomology Research Laboratory, Moorestown, USDA
(ARS, Entomology Research Division)
Geophysical Fluid Dynamics Laboratory, Commerce (ESSA)
Hudson-Delaware Basins Office, Interior (FWPCA)
Natl. Aviation Facilities Exp. Ctr., Transportation (FAA)
Picatinny Arsenal Laboratories, DOD (Army)
Plasma Physics Laboratory, AEC
Princeton-Pennsylvania Accelerator, AEC
Sandy Hook Marine Laboratory, Interior (Bu. Sport Fish.)

NEW MEXICO

Aeromedical Laboratory, DOD (Air Force)
Animal Disease and Parasite Laboratory, USDA
(ARS, Animal Disease & Parasite Research Division)
Antenna Test Range, NASA
Cotton Ginning Lab., USDA (ARS, Agri. Eng. Resch. Division)
Forestry Sciences Laboratory, Albuquerque, USDA (Forest Service,
Rocky Mt. Forest & Range Experiment Station)
Jornada Experiment Range, USDA (ARS, Crops Resch. Division)
Los Alamos Scientific Laboratory, AEC
Missile Development Center, DOD (Air Force)
Office of Research Analyses, DOD (Air Force)
Ordnance Missile Test Facility, DOD (Navy)
Sandia Laboratory, AEC
Special Weapons Center, DOD (Air Force)
Test Facility, Interior (Office of Saline Water)
Uranium Mine Research Facility, HEW (CPEHS)
Weapons Evaluation Facility, DOD (Navy)
Weapons Laboratory, DOD (Air Force)
White Sands Missile Range, DOD (Army)
White Sands Test Facility, NASA

NEW YORK

Applied Science Laboratory, DOD (Navy)
Bioengineering Research Laboratory, VA
Brookhaven National Laboratory, AEC
Eastern Fish Nutrition Lab., Interior (Bu. Sport Fish.)
Goddard Institute for Space Studies, NASA
Health and Safety Laboratory, AEC
Knolls Atomic Power Laboratory, AEC
Medical Equipment R&D Laboratory, DOD (Army)
Plum Island Animal Disease Laboratory, USDA (ARS)
Plant, Soils & Nutrition Laboratory, USDA (ARS,
Soil & Water Conservation Research Division)
Rome Air Development Center, DOD (Air Force)
Watervliet Arsenal Laboratories, DOD (Army)

NORTH CAROLINA

Border Belt Tobacco Resch. Station, USDA
(ARS, Crops Research Division)
Ctr. for Estuarine & Menhaden Rsch.,Interior (Bu. Comm. Fish.)
Coweeta Hydrologic Laboratory, USDA (Forest Service,
SW Forest Experiment Station)
Economic Effects Research Laboratory, HEW (CPEHS)
Forestry Sciences Laboratory, Research Triangle Park, USDA
(Forest Service, SW Forest Experiment Station)
Medical Field Research Laboratory, DOD (Navy)
National Inst. of Environmental Health Sciences, HEW (NIH)
SE Forest Experiment Station, USDA (Forest Service,
SE Forest Experiment Station)
Test Facility, Interior (Office of Saline Water)
Tobacco Research Station, Oxford,* USDA
(ARS: Agri. Engineering Research Division
Crops Research Division
Entomology Research Division)

NORTH DAKOTA

Coal Research Laboratory, Interior (Bu. Mines)
Metabolism and Radiation Rsch. Laboratory, Fargo,* USDA
(ARS: Animal Husbandry Research Division
Crops Research Division
Entomology Research Division)
Northern Great Plains Research Center, Mandan,* USDA
(ARS: Crops Research Division
Soil & Water Conservation Research Division)
Northern Prairie Wildlife Research Ctr., Interior (Bu. Sport Fish.)
Shelterbelt Laboratory, Bottineau, USDA (Forest Service,
Rocky Mountain Forest & Rge. Station)

OHIO

Advanced Waste Treatment Research Lab., Interior (FWPCA)
Aeropropulsion Laboratory, DOD (Air Force)
Aerospace Medical Research Laboratory, DOD (Air Force)

** Joint AEC-NASA Operation

STATE

OHIO (Continued)

Aerospace Research Laboratories, DOD (Air Force)
Analytical Quality Control Laboratory, Interior (FWPCA)
Avionics Laboratory, DOD (Air Force)
Bureau of Water Hygiene Laboratory, HEW (CPEHS)
Chemistry & Physics Laboratory, HEW (CPEHS)
Flight Dynamics Laboratory, DOD (Air Force)
Forest Insect & Disease Laboratory, Delaware, USDA
(Forest Service, NE Forest Experiment Station)
Forestry Sciences Laboratory, Columbus, USDA
(Forest Service, NE Forest Experiment Station)
Health Effects Research Laboratory, HEW (CPEHS)
Lewis Research Center, NASA.
Materials Laboratory, DOD (Air Force)
Milk and Food Laboratories, HEW (CPEHS)
Mound Laboratory, AEC
Newtown Fish Toxicology Laboratory, Interior (FWPCA)
North Appalachian Experimental Watershed, USDA
(ARS, Soil and Water Conservation Division)
Occupational Health Laboratory, HEW (CPEHS)
Plum Brook Station, NASA
Process Control Engineering Laboratory, HEW (CPEHS)
Radiological Engineering Laboratory, HEW (CPEHS)
Radiological Health Laboratory, HEW (CPEHS)
Shade Tree and Ornamental Plants Laboratory, USDA
(ARS, Crops Research Division)
Solid Wastes Laboratory, HEW (CPEHS)
Solid Wastes Pilot Handling Plant, HEW (CPEHS)

OKLAHOMA

Agricultural Water Quality Mgmt. Laboratory, USDA
(ARS, Soil & Water Conservation Research Division)
Civil Aeromedical Institute, Transportation (FAA)
Fort Reno Livestock Research Station, USDA
(ARS, Animal Husbandry Research Division)
Robert S. Kerr Water Research Center, Interior (FWPCA)
National Severe Storms Laboratory, Commerce (ESSA)
Petroleum Research Center, Interior (Bu. Mines)
Southern Great Plains Field Station, USDA
(ARS, Crops Research Division)
Southern Great Plains Watershed Research Center, USDA
(ARS, Soil and Water Conservation Research Division)

OREGON

Agricultural Engineering Laboratory, Forest Grove,* USDA
(ARS: Agricultural Engineering Research Division
Entomology Research Division)
Forestry Sciences Laboratory, Corvallis, USDA
(Forest Service, Pacific NW Forest & Range Exp. Sta.)
Forestry Services Laboratory, Portland, USDA
(Forest Service, Pacific NW Forest & Range Exp. Sta.)
Metallurgy Research Center, Interior (Bu. Mines)
Pacific NW Forest & Rge. Expermt. Sta., USDA (Forest Service)
Pacific Northwest Water Laboratory, Interior (FWPCA)
Range and Wildlife Habitat Laboratory, USDA (Forest Service,
Pacific NW Forest & Range Experiment Station)
Silviculture Laboratory, USDA (Forest Service,
Pacific NW Forest & Range Experiment Station)
Squaw Butte-Harney Experiment Station, USDA
(ARS, Crops Research Division)

PENNSYLVANIA

Air Development Center, DOD (Navy)
Air Engineering Center, DOD (Navy)
Bettis Atomic Power Laboratory, AEC
Coal Research Center, Interior (Bu. Mines)
Eastern Utilization Research Laboratory, USDA (ARS)
Forestry Sciences Laboratory, Warren, USDA
(Forest Service, NE Forest Experiment Station)
Frankford Arsenal Laboratories, DOD (Army)
Mining Research Center, Interior (Bu. Mines)
Northeast Watershed Research Center, USDA
(ARS, Soil and Water Conservation Rsch. Division)
Northeastern Forest Experiment Station, USDA
(Forest Service, NE Forest Experiment Station)
Ordnance Research Laboratory, DOD (Navy)
Regional Pasture Research Laboratory, University Park,*
USDA (ARS: Crops Research Division
Entomology Research Division
Soil and Water Conservation Rsch. Div.)
Safety Research Center, Interior (Bu. Mines)

RHODE ISLAND

Injury Control Research Laboratory, HEW (CPEHS)
Narragansett Marine Game Fish Lab., Interior (Bu. Sport Fish.)
National Marine Water Quality Laboratory, Interior (FWPCA)
Northeast Water Hygiene Laboratory, HEW (CPEHS)
Underwater Weapons Research & Eng. Station, DOD (Navy)

STATE

SOUTH CAROLINA

Coastal Plains Soil & Water Research Center, USDA
(ARS, Soil & Water Conservation Research Division)
Forestry Sciences Laboratory, Charleston, USDA
(Forest Service, SE Forest Experiment Station)
Savannah River Laboratory, AEC
Southeastern Cotton Ginning Research Lab., USDA
(ARS, Agri. Engineering Research Division)
Southeastern Cotton Insects Laboratory, USDA
(ARS, Entomology Research Division)
Vegetable Breeding Laboratory, Charleston,* USDA
(ARS: Crops Research Division
Entomology Research Division)

SOUTH DAKOTA

Forestry Research Laboratory, USDA (Forest Service,
Rocky Mountain Forest & Range Experiment Station)
Newell Irrigation and Dryland Field Station, USDA (ARS,
Soil and Water Conservation Research Division)
North Central Reservoir Invest., Interior (Bu. Sport Fish.)
Northern Grain Insects Research Laboratory, Brookings,* USDA
(ARS: Crops Research Division
Entomology Research Division)
Test Facility, Interior (Office of Saline Water)

TENNESSEE

Air Resources Atmos. Turbul. & Diffusion Lab., Commerce (ESSA)
Arnold Engineering Development Center, DOD (Air Force)
Central Laboratories, TVA
Cotton Field Station, USDA (ARS, Crops Research Division)
Dairy Cattle Experiment Station, USDA
(ARS, Animal Husbandry Research Division)
Engineering Laboratory, TVA
Forestry and Fisheries Laboratory, TVA
Materials Engineering Laboratory, TVA
Oak Ridge Associated Universities, AEC
Oak Ridge National Laboratory, AEC
Silviculture Laboratory, USDA (Forest Service,
Southern Forest Experiment Station)
Solid Wastes Laboratory: Field Station, HEW (CPEHS)
Water Quality Laboratory, TVA

TEXAS

Aerospace Medical Laboratory, DOD (Air Force)
Big Spring Field Station, USDA (ARS,
Soil & Water Conservation Research Division)
Biological Laboratory, Interior (Bu. Comm. Fish.)
Blacklands Conservation Experiment Station, USDA
(ARS, Soil & Water Conservation Research Division)
Citrus, Vegetable, Soil & Water Laboratory, Weslaco,* USDA
(ARS: Crops Research Division
Entomology Research Division
Market Quality Research Division
Soil & Water Conservation Research Division)
Crops Research Laboratory, College Station, USDA
(ARS, Crops Research Division)
Ellington Support Facilities, NASA
Entomology Research Laboratory, Brownsville, USDA
(ARS, Entomology Research Division)
Epidemiological Laboratory, DOD (Air Force)
Fruit and Vegetable Products Utiliz. Laboratory, USDA
(ARS, Southern Utilization Research Division)
Helium Research Center, Interior (Bu. Mines)
Human Resources Laboratory, DOD (Air Force)
Institute for Surgical Research, DOD (Army)
Livestock Insect Laboratory, Kerrville,* USDA
(ARS: Agricultural Engineering Research Division
Animal Disease & Parasite Research Division
Entomology Research Division)
Manned Spacecraft Center, NASA
National Scientific Balloon Facility, NSF
Pecan Field Station, USDA (ARS, Crops Research Division)
Rice-Pasture Research Experiment Station, USDA
(ARS, Market Quality Research Division)
School of Aviation Medicine, DOD (Air Force)
Screwworm Research Lab., USDA (ARS, Ento. Research Division)
South Plains Cotton Ginning Research Laboratory, USDA
(ARS, Agricultural Engineering Research Division)
Southwest Cotton Insects Investigation Laboratory, USDA
(ARS, Entomology Research Division)
Southwest Cotton Insects Lab., USDA (ARS, Ento. Research Div.)
Southwestern Field Crops Pathol. Laboratory, USDA
(ARS, Market Quality Research Division)
Southwestern Great Plains Research Center, USDA
(ARS, Soil and Water Conservation Research Division)
SW Vet. Toxico. & Livestock Insects Resch. Lab., College Sta.,*
USDA (ARS: Animal Disease & Parasite Research Division
Entomology Research Division)
Test Facility, Interior (Office of Saline Water)

STATE

UTAH

Crops Research Laboratory, USDA (ARS, Crops Research Division)
Deseret Test Center Laboratories, DOD (Army)
Forestry Sciences Laboratory, Logan, USDA
    (Forest Service, Intermountain For. & Range Exp. Sta.)
Forestry Sciences Lab., Provo, USDA (Forest Service,
    Intermountain Forest & Range Experiment Station)
Intermountain Forest & Range Expermt. Station, Ogden, USDA
    (Forest Service, Intermountain For. & Rge. Exp. Sta.)
Metallurgy Research Center, Interior (Bu. Mines)
Poisonous Plant Research Laboratory, USDA
    (ARS, Animal Disease & Parasite Research Division)
Western Area Occupational Health Laboratory, HEW (CPEHS)

VERMONT

Soil and Water Conservation Research Station, USDA
    (ARS, Soil & Water Conservation Research Division)
Sugar Maple Laboratory, USDA (Forest Service)

VIRGINIA

Analytic Services, Inc., DOD (Air Force)
Aviation Materiel Laboratories, DOD (Army)
Beef Cattle Research Station, USDA
    (ARS, Animal Husbandry Research Division)
Center for Naval Analyses, DOD (Navy)
Engineer Reactor Group, DOD (Army)
Engineer Topographic Laboratory, DOD (Army)
Fairbank Highway Research Station, Transportation (FHA)
General Equipment Test Activity, DOD (Army)
HUMRRO, DOD (Army)
Institute for Def. Analyses, DOD (Office of the Secretary)
Langley Research Center, NASA
Mobility Equipment R&D Center, DOD (Army)
National Radio Astronomy Observatory, NSF
Research Analysis Corporation, DOD (Army)
Space Radiation Effects Laboratory, NASA
Stored Products Insects Laboratory, USDA
    (ARS, Market Quality Research Division)
Test and Evaluation Laboratory, Commerce (ESSA)
Wallops Station, NASA
Washington Radio Station Lab., Transportation (Coast Guard)
Weapons Laboratory, DOD (Navy)
Weather Research Facility, DOD (Navy)

WASHINGTON

Applied Physics Laboratory, DOD (Navy)
Biological Laboratory, Interior (Bu. Comm. Fish.)
Endoparasite Vector Pioneering Research Laboratory, USDA
    (ARS, Animal Disease & Parasite Research Division)
Entomology Research Laboratory, Yakima,* USDA
    (ARS: Agricultural Engineering Research Division
        Entomology Research Division)
Exploratory Fish. & Gear Research Base, Interior (Bu. Comm. Fish.)
Food Science Laboratory, Interior (Bu. Comm. Fish.)
Forest Engineering Laboratory, USDA (Forest Service,
    North Central Forest Exp. Station)
Forest Hydrology Laboratory, USDA (Forest Service,
    Pacific NW Forest & Range Exp. Station)
Forestry Sciences Laboratory, Olympia, USDA (Forest Service,
    Pacific NW Forest & Range Exp. Station)
Forestry Services Laboratory, Seattle, USDA (Forest Service,
    Pacific NW Forest & Range Exp. Station)
Marine Mammal Research Laboratory, Interior (Bu. Comm. Fish.)
Mining Research Laboratory, Interior (Bu. Mines)
Northwest Water Hygiene Laboratory, HEW (CPEHS)
Northwestern Market Quality Laboratory, USDA
    (ARS, Market Quality Research Division)
Pacific Northwest Laboratory, AEC
Pacific Oceanographic Laboratory, Commerce (ESSA)
Salmon Cultural Laboratory, Interior (Bu. Sport Fish.)
Soil & Water Conservation Research Station, USDA
    (ARS, Soil & Water Conservation Research Division)
Technological Laboratory, Interior (Bu. Comm. Fish.)
Transportation & Facilities Research Laboratory, Yakima, USDA
    (ARS, Transp. & Facilities Research Division)
Tree Fruit Research Center, USDA (ARS, Crops Research Div.)
Western Fish Disease Laboratory, Interior (Bu. Sport Fish.)
Western Fish Nutrition Laboratory, Interior (Bu. Sport Fish.)

WEST VIRGINIA

Appalachian Laboratory, HEW (CPEHS)
Coal Research Center, Interior (Bu. Mines)
Eastern Fish Disease Lab., Interior (Bu. Sport Fish.)
Forest Products Marketing Laboratory, USDA (Forest Service,
    Northeastern Forest Experiment Station)
Forestry Sciences Laboratory, Morgantown, USDA
    (Forest Service, Northeastern Forest Exp. Station)
Petroleum Research Laboratory, Interior (Bu. Mines)
Timber and Watershed Laboratory, USDA
    (Forest Service, Northeastern Forest Exp. Station)

STATE

WISCONSIN

Barley and Malt Lab., USDA (ARS, Crops Research Division)
Fish Control Laboratory, Interior (Bu. Sport Fish.)
Forest Products Laboratory, USDA (Forest Service)
Forest Watershed Laboratory, USDA (Forest Service,
    North Central Forest Experiment Station)
Institute of Forest Genetics, USDA (Forest Service,
    North Central Forest Experiment Station)

WYOMING

Cheyenne Horticultural Field Station, USDA
    (ARS, Crops Research Division)
Fish Genetics Laboratory, Interior (Bu. Sport Fish.)
Forest Range & Watershed Laboratory, USDA (Forest Service,
    Rocky Mountain Forest & Range Experiment Station)
Petroleum Research Center, Interior (Bu. Mines)

OUTLYING AREAS

CANAL ZONE

Medical Research Unit, DOD (Army)
Middle America Research Unit, Balboa Heights, HEW (NIH)
Tropic Test Center, DOD (Army)

PUERTO RICO

Arecibo Observatory, DOD (Air Force)
Federal Experiment Station, Mayaguez, USDA
    (ARS: Crops Research Division
        Entomology Research Division)
Institute of Tropical Forestry, Rio Piedras, USDA
    (Forest Service, Forestry Research Headquarters)
San Juan Laboratories, HEW (HSMHA)

VIRGIN ISLANDS

Federal Experiment Station,*
    (ARS: Agricultural Engineering Research Division
        Entomology Research Division)

FOREIGN COUNTRIES

ANTARCTICA

Amundsen-Scott South Pole Station, NSF
Byrd Station, National Science Foundation
Hallett Station, National Science Foundation
McMurdo Station, National Science Foundation
Palmer Station, National Science Foundation

CANADA

Churchill Research Range, NASA

CHILE

Cerro Tololo Inter-American Observatory, NSF

EGYPT

Medical Research Unit No. 3, DOD (Navy)

FRANCE

European Parasite Laboratory, Gif-Sur-Yvette, USDA
    (ARS, Entomology Research Division)

ITALY

Entomology Research Laboratory, Rome, USDA
    (ARS, Entomology Research Division)

JAPAN

Atomic Bomb Casualty Commission, Hiroshima, AEC

MALAYSIA

Medical Research Unit, DOD (Army)

NETHERLANDS

Market Quality Laboratory, Rotterdam, USDA
    (ARS, Market Quality Research Division)

REPUBLIC OF PANAMA

Smithsonian Trop. Rsch. Institute, Smithsonian Institution

TAIWAN

Medical Research Unit No. 2, DOD (Navy)

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Based on COSATI Subject Category List (DOD-Modified)
October 1965

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09.1 Liquid Rocket Propellants
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22 SPACE TECHNOLOGY

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03 Spacecraft Trajectories and Reentry
04 Spacecraft Launch Vehicles and Ground Support

Index

01 AERONAUTICS

01 Aerodynamics

Operational flight characteristics and problems of full-scale aircraft as they are affected by the dynamics of air. For theoretical and experimental aerodynamics, see 20 04 Fluid Mechanics. See also 16 02 Missile Trajectories; 19 04 Explosions, Ballistics, and Armor; and 22 03 Spacecraft Trajectories and Reentry.

225, 237, 239, 273, 277, 385, 401, 823, 833, 847, 849, 859, 867, 897, 985.

02 Aeronautics

Aircraft operations such as takeoff and landing, air traffic, all-weather and night flight, flight safety, and ground safety. For missile operations, see 16 Missile Technology. For spacecraft operations, see 22 Space Technology. For navigation, see 17 07 Navigation and Guidance.

195, 239, 277, 381, 387, 401, 823, 833, 845, 847, 849, 859, 861, 897, 985.

03 Aircraft

Design, production, and maintenance of aircraft, aircraft components, and aircraft equipment. Includes lighter-than-air craft, gliders, rotating-wing aircraft, and ground effect machines. Structural studies of complete aircraft parts such as airframes, bodies, wings, etc. Stability and control systems, boundary layer control systems, dynamic and static control devices. Aircraft damage assessment and vulnerability studies; effects of gunfire and blast on aircraft and flight equipment. See also 16 Missile Technology and 22 Space Technology.

163, 169, 217, 237, 239, 273, 277, 279, 379, 401, 849, 859, 861, 863.

04 Aircraft Flight Instrumentation

Instruments necessary for controlling the flight of an aircraft. Includes artificial horizon, airspeed indicator, altimeter, etc. For navigation instruments, see 17 07 Navigation and Guidance.

239, 277, 303, 379, 381, 385, 401, 823, 833, 845, 849, 859, 863, 867, 897, 985.

05 Air Facilities

Airports, runways, hangars, control towers, ground refueling systems, aircraft handling and maintenance equipment. For air traffic control systems, see 17 07 Navigation and Guidance.

195, 379, 381, 385, 401, 441, 473, 833, 847, 849, 859, 897, 985.

02 AGRICULTURE

01 Agricultural Chemistry

The application of chemistry to the production and use of crops and livestock; chemurgy, fertilizers, feeds. For pesticides, see 06 06 Environmental Biology.

5, 13, 17, 19, 21, 23, 41, 45, 47, 49, 51, 53, 57, 59, 487, 957.

02 Agricultural Economics

Economic conditions, markets, production controls, subsidies, etc. affecting agriculture.

15, 27, 35, 57, 117, 505.

03 Agricultural Engineering

Design of farm machinery and farm structures. Soil conservation, water conservation, and irrigation. Processing of farm products.

3, 7, 11, 13, 19, 27, 33, 35, 47, 49, 63, 65, 67, 69, 71, 73, 75, 77, 79, 117.

04 Agronomy and Horticulture

Field crop production, cultivation of orchards, gardens, nurseries, etc. For plant anatomy, physiology, etc., see 06 03 Biology.

3, 17, 19, 27, 47, 957.

05 Animal Husbandry

Production and care of domestic animals, such as bovines, sheep, goats, horses, and swine; domestic animals used as pets. Includes veterinary medicine. For animal anatomy, physiology, pathology, etc., see 06 03 Biology. For care and breeding of laboratory animals, see 06 03 Biology.

3, 5, 7, 9, 11, 39, 43, 47, 117, 447.

06 Forestry

Development, management, and cultivation of forests.

61, 63, 65, 67, 69, 71, 73, 75, 77, 79, 951, 957.

03 ASTRONOMY AND ASTROPHYSICS

01 Astronomy

Observations of celestial bodies, their distances, positions, etc. For spectroscopic and radio observations of celestial bodies and interstellar space, see 03 02 Astrophysics.

823, 837, 845, 851, 853, 857, 859, 863, 867, 895, 897, 909, 913.

02 Astrophysics

Physical and chemical aspects of celestial bodies, their origin and evolution. Includes astronomical spectroscopy and radio astronomy.

85,157, 173, 195, 197, 221, 823, 833, 837, 845, 851, 853, 855, 857, 859, 863, 867, 889, 895, 897, 909, 913, 917, 919, 921, 935, 937, 939.

03 Celestial Mechanics

The motions of celestial bodies under the influence of gravity.

853, 857, 859, 863, 867, 939.

04 ATMOSPHERIC SCIENCES

01 Atmospheric Physics

Physical and chemical properties of the atmosphere, exclusive of considerations of weather and climate. Aeronomy, aurora and airglow, atmospheric structure, energetic particles, solar-terrestrial relationships, etc.

85, 95, 117, 141, 157, 163, 169, 173, 179, 189, 193, 221, 229, 303, 389, 509, 823, 827, 833, 845, 851, 853, 857, 859, 863, 867, 887, 897, 905, 907, 913, 915, 917, 921, 939.

02 Meteorology

Weather observation, prediction, and modification. Climatology.

85, 117, 139, 141, 143, 149, 155, 159, 161, 163, 169, 173, 179, 181, 183, 197, 229, 479, 777, 781, 783, 833, 849, 853, 857, 859,867, 871, 887, 897, 905, 907, 911, 915, 917, 921, 925, 939, 947, 971.

05 BEHAVIORAL AND SOCIAL SCIENCES

01 Administration and Management

Accounting, planning, budgeting, operations, public relations, production planning, organization coordination, etc. See also 14 01 Cost Effectiveness and 12 02 Operations Research.

321, 401, 509, 569, 867, 901, 981.

02 Documentation and Information Technology

Library science: acquisition, cataloging, indexing, abstracting, bibliography. Information storage and retrieval systems.

85, 115, 137, 179, 189, 287, 321, 401, 569, 611, 689, 853, 857, 859, 867, 901, 937, 939, 941, 981, 1001, 1003, 1005, 1007.

03 Economics

Econometrics, economic history, economic theory, banking and finance, international economic relations, trade and commerce. See also 02 02 Agricultural Economics.

15, 193, 287, 401, 505, 927.

04 History, Law, and Political Science

Theory and practice of government, international relations, politics, law, etc.

287, 401, 785, 787, 789, 857.

05 Human Factors Engineering

Design of equipment with emphasis on optimum utilization by humans. Habitability of work and living space.

3, 189, 193, 213, 319, 321, 401, 409, 461, 495, 511, 823, 849, 857, 859, 867, 875, 901, 931, 981, 985, 987.

06 Humanities

Philosophy, literature, art, music, drama, etc.

785, 787, 789, 935.

07 Linguistics

Study of languages, including phonology, morphology, syntax, and semantics. Mathematical linguistics. Machine translation.

287, 321, 857, 935.

08 Man-Machine Relations

Interaction of man and equipment in terms of subsystem and system performance requirements and evaluation. Encompasses manual controls, information displays, information processing, tactical kinethesis and other human sensory modalities involved in operation of equipment and understanding of personnel subsystems. See also 05 Human Factors Engineering.

193, 213, 241, 319, 321, 379, 401, 443, 445, 461, 511, 823, 839, 847, 849, 857, 859, 863, 867, 987.

09 Personnel Selection, Training, and Evaluation

Recruitment, selection, training, and utilization of personnel. Industrial relations, wages, benefits. Education, teaching aids, teaching methods. Job analysis, career guidance. For physical examinations, see 06 14 Personnel Selection and Maintenance (Medical).

239, 241, 271, 283, 287, 321, 395, 401, 443, 445, 461, 465, 597, 603, 605, 607, 611, 617, 857, 859, 867, 901.

10 Psychology (Individual and Group Behavior)

Mental processes and phenomena such as perception, learning, motivation, intelligence, attitudes, group dynamics, etc. Experimental psychology, including animal behavior; physiological psychology; developmental psychology; social psychology; clinical psychology; educational psychology; military psychology; and parapsychology. For psychiatry, see 06 05 Clinical Medicine.

15, 213, 241, 259, 283, 287, 321, 337, 367, 375, 379, 401, 419, 443, 445, 511, 561, 571, 579, 587, 595, 607, 859, 863, 941, 981, 999.

11 Sociology

Social relations, the functioning of human society, ethnology, criminology, etc.

287, 321, 571, 587, 595, 607, 935, 937, 999.

06 BIOLOGICAL AND MEDICAL SCIENCES

01 Biochemistry

Studies of the chemical processes which take place in biological systems. Identification of biochemical substances and the methods used for biochemical assay and analysis. For biochemical studies of drugs, see 06 15 Pharmacology. See also 07 03 Organic Chemistry.

3, 7, 9, 15, 17, 19, 21, 23, 27, 29, 31, 35, 37, 39, 47, 49, 51, 53, 55, 57, 59, 85, 91, 99, 103, 113, 115, 117, 193, 323, 367, 379, 399, 415, 419, 421, 423, 425, 427, 463, 499, 505, 509, 513, 517, 531, 539, 541, 543, 549, 557, 561, 563, 565, 567, 573, 575, 579, 585, 591, 595, 599, 601, 603, 605, 607, 611, 617, 737, 739, 757, 761, 765, 771, 773, 823, 855, 859, 867, 915, 935, 937, 945, 951, 981, 999.

02 Bioengineering

Establishment of requirements for, and development of, bioinstrumentation and equipment needed by man in operation of man-machine systems. Includes instrumentation for psychophysiological monitoring and biomedical information handling. Compact, lightweight transducers and transmitter equipment introducing minimum constraint of subject. Man's requirements for displays and controls. Use of body potentials as intrinsic power supplies.

3, 7, 11, 27, 35, 57, 85, 113, 115, 117, 193, 195, 259, 331, 333, 367, 399, 419, 601, 611, 613, 823, 833, 845, 847, 849, 857, 859, 863, 867, 897, 981, 997, 999, 1001, 1003, 1005, 1007.

03 Biology

Biological topics not included in other Groups, e.g., botany, zoology, genetics, etc. Animal anatomy, physiology, and pathology. Care and breeding of laboratory animals. For human anatomy and physiology, see 06 16 Physiology. See also 08 01 Biological Oceanography.

3, 5, 7, 9, 11, 17, 19, 27, 31, 33, 35, 39, 47, 55, 85, 87, 99, 113, 115, 117, 419, 427, 499, 509, 531, 549, 553, 557, 567, 573, 577, 579, 591, 595, 597, 599, 601, 603, 605, 607, 609, 611, 613, 615, 617, 627, 681, 731, 733, 735, 737, 739, 741, 743, 747, 749, 751, 753, 755, 757, 761, 763, 765, 767, 771, 773, 775, 785, 787, 789, 823, 833, 855, 859, 897, 911, 915, 923, 927, 935, 937, 941, 949, 951, 981, 993, 999.

04 Bionics

Study of biological processes in order to develop engineering systems.

3, 85, 115, 189, 259, 419, 593, 601, 613, 853, 857, 859, 863, 867.

05 Clinical Medicine

General medicine, medical specialties, and paramedical sciences. Internal medicine, including preventive medicine; pediatrics and geriatrics; dermatology; ophthalmology; psychiatry; dentistry. Includes nursing, first aid, medical technology, physical therapy, and prosthesis. For treatment of injuries resulting from weapons, see 06 21 Weapon Effects. For pharmaceutics, see 06 15 Pharmacology. For veterinary medicine, see 02 05 Animal Husbandry.

85, 87, 91, 115, 211, 235, 259, 295, 339, 341, 345, 367, 407, 417, 419, 421, 423, 425, 431, 461, 463, 531, 543, 549, 557, 561, 563, 565, 567, 569, 571, 573, 575, 581, 583, 585, 587, 595, 597, 599, 601, 603, 605, 607, 609, 611, 613, 615, 857, 863, 981, 999.

06 Environmental Biology

External influences on the biological processes of organisms. Ecology, pesticides, insect vectors, pest control, natural noxious agents, etc. See also 06 19 Stress Physiology.

3, 5, 7, 9, 13, 17, 19, 25, 27, 31, 35, 37, 39, 45, 47, 55, 63, 85, 87, 91, 99, 101, 115, 117, 125, 193, 235, 333, 339, 359, 367, 415, 461, 487, 495, 505, 507, 509, 525, 527, 563, 567, 573, 577, 581, 583, 597, 599, 603, 611, 615, 617, 621, 623, 625, 627, 629, 631, 633, 635, 637, 639, 641, 643, 645, 647, 649, 651, 653, 657, 659, 667, 681, 741, 745, 757, 759, 761, 767, 777, 781, 783, 791, 805, 807, 811, 815, 817, 823, 833, 857, 859, 867, 897, 905, 911, 927, 935, 937, 941, 949, 951, 957, 981.

07 Escape, Rescue, and Survival

Methods and equipment for escape from disabled aircraft, submarines, etc. Rescue equipment, signals, flotation devices, survival kits.

193, 291, 325, 377, 461, 839, 847, 849, 857, 859, 863, 981.

08 Food

Processing, packaging, storage, preparation, and dispensing of food. Kitchen equipment.

19, 21, 23, 27, 31, 33, 35, 41, 49, 51, 55, 57, 59, 117, 351, 611, 655, 661, 669, 671, 673, 675, 677, 679, 857, 863, 867, 871.

09 Hygiene and Sanitation

Personal hygiene. For sanitary engineering, see 13 02 Civil Engineering.

193, 295, 847, 857, 859, 867, 901.

10 Industrial (Occupational) Medicine

Interaction of man and industrial environment. Noise, physical trauma, etc.

493, 529, 531, 555, 611, 853, 857, 859, 863, 953.

11 Life Support

Equipment and techniques for sustaining life in environments where normal respiration is not possible. Systems which provide, as a minimum, respiratory support. Includes closed ecological systems, space suits, diving gear, oxygen masks, etc. For equipment providing protection against such environmental elements as heat, cold, noise, machinery, etc., see 06 17 Protective Equipment. For equipment providing protection against CBR agents, see 15 02 Chemical, Biological and Radiological Warfare.

193, 213, 259, 335, 359, 379, 405, 427, 431, 461, 601, 823, 833, 839, 849, 857, 859, 863, 867, 897, 901, 981.

12 Medical and Hospital Equipment and Supplies

Equipment and supplies for laboratory and field use. See also 06 02 Bioengineering.

91, 115, 259, 333, 415, 599, 857, 859, 981.

13 Microbiology

Studies of microscopic plants and animals. See also 08 01 Biological Oceanography and 15 02 Chemical, Biological, and Radiological Warfare.

3, 5, 7, 11, 17, 19, 27, 35, 39, 47, 85, 113, 115, 285, 339, 341, 343, 345, 367, 499, 507, 513, 517, 521, 525, 527, 563, 565, 573, 575, 581, 583, 591, 595, 597, 599, 601, 603, 605, 607, 611, 613, 615, 617, 735, 741, 745, 759, 771, 811, 813, 815, 817, 823, 859, 863, 911, 927, 935, 941, 981, 999.

14 Personnel Selection and Maintenance (Medical)

Physical standards, examinations, anthropometrics, physical fitness. See also 05 09 Personnel Selection, Training, and Evaluation.

91, 259, 271, 461, 599, 847, 981.

15 Pharmacology

The synthesis, composition, properties, and physiological effects of drugs. Includes psychopharmacology. See also 15 02 Chemical, Biological, and Radiological Warfare.

59, 113, 131, 285, 323, 345, 367, 463, 499, 509, 557, 559, 561, 563, 565, 571, 575, 579, 591, 599, 601, 603, 605, 611, 613, 617, 755, 833, 897, 981, 999.

16 Physiology

Organic processes and phenomena of humans, e.g., growth, aging, metabolism, biological rhythm, healing and repair, sensation, etc. Human anatomy. For animal anatomy and physiology, see 06 03 Biology. For physiological psychology, see 05 10 Psychology. See also 06 19 Stress Physiology.

15, 31, 87, 91, 115, 259, 335, 337, 345, 367, 375, 415, 423, 425, 427, 493, 495, 557, 561, 563, 565, 567, 571, 573, 575, 579, 581, 585, 595, 599, 601, 607, 611, 613, 859, 863, 935, 981, 999.

17 Protective Equipment

Equipment providing protection against such environmental elements as heat, cold, noise, machinery, etc. For equipment providing protection against CBR agents, see 15 02 Chemical, Biological, and Radiological Warfare. For armor, see 19 04 Explosions, Ballistics, and Armor. For equipment and techniques for sustaining life in environments where normal respiration is not possible, see 06 11 Life Support.

213, 285, 351, 415, 857, 863, 867, 901, 981.

18 Radiobiology

Radiation biology. Interaction of biological systems with electromagnetic and particle radiation. Dosimetry, health physics, radiation injury. Prophylaxis and therapy of nuclear radiation sickness and injury.

85, 87, 91, 95, 101, 105, 109, 111, 113, 115, 117, 125, 191, 195, 259, 263, 265, 447, 477, 497, 523, 535, 537, 545, 547, 555, 599, 611, 613, 639, 853, 857, 859, 863, 867, 875, 889, 937, 959, 981, 999.

19 Stress Physiology

Effects of extreme environments or unusual stimulation on biological processes. Physiological effects of motion, gravity, sound, light, heat, magnetism, sensory deprivation, fatigue, etc. For effects of ionizing and particle radiation, see 06 18 Radiobiology.

3, 11, 55, 85, 193, 335, 359, 375, 379, 395, 415, 417, 461, 495, 505, 511, 601, 611, 757, 761, 833, 857, 859, 863, 897, 905, 981.

20 Toxicology

Detection, neutralization, decontamination, physiological effects, etc. of poisonous substances. See also 15 02 Chemical, Biological, and Radiological Warfare.

3, 7, 21, 23, 27, 41, 59, 111, 117, 285, 345, 367, 499, 509, 529, 531, 549, 553, 555, 599, 603, 611, 613, 617, 739, 745, 755, 765, 775, 811, 813, 815, 817, 859, 875, 981.

21 Weapon Effects

Wounds, injuries, or other medical conditions directly resulting from weapons. For effects of CBR weapons, see 15 02 Chemical, Biological, and Radiological Warfare. For effects of nuclear weapons, see 15 06 Nuclear Warfare.

265, 271, 323, 337, 345, 447.

07 CHEMISTRY

01 Chemical Engineering

Techniques, processes, unit operations, apparatus, and plant equipment that apply to chemical manufacturing, processing, transportation, and storage.

83, 85, 99, 109, 115, 117, 125, 261, 533, 683, 685, 687, 689, 693, 701, 705, 721, 723, 803, 805, 807, 809, 811, 813, 817, 819, 823, 859, 867, 901, 957.

02 Inorganic Chemistry

Synthesis, properties, and reactions of inorganic compounds; studies of the elements; inorganic quantitative and qualitative analysis.

83, 85, 91, 95, 99, 105, 115, 117, 261, 433, 449, 473, 509, 533, 601, 611, 683, 685, 687, 689, 693, 695, 697, 699, 701, 703, 705, 707, 721, 803, 805, 807, 809, 811, 813, 817, 819, 823, 853, 859, 861, 867, 901, 931, 935, 957, 991.

03 Organic Chemistry

Synthesis, properties, and reactions of organic compounds; organic quantitative and qualitative analysis. See also 06 01 Biochemistry and 06 15 Pharmacology.

6, 31, 41, 49, 53, 85, 105, 115, 131, 199, 261, 433, 449, 473, 487, 499, 503, 509, 517, 519, 529, 539, 541, 543, 549, 583, 591, 595, 599, 601, 603, 605, 607, 611, 683, 693, 699, 719, 721, 723, 803, 805, 807, 809, 811, 813, 817, 819, 823, 847, 859, 861, 867, 931, 945, 993.

04 Physical Chemistry

Physical aspects and theoretical interpretations of chemical systems. Colloid chemistry, catalysis, solutions, chemical equilibria and reaction kinetics, surface chemistry, chemical thermodynamics and thermochemistry, etc. Physical methods of analysis not applied exclusively to either organic or inorganic chemical substances. Atomic and molecular structure and spectra; spectroscopic analysis for the fundamental understanding of chemical bonding, nuclear motions, etc. Nuclear magnetic resonance spectroscopy and electron paramagnetic resonance spectroscopy. For the qualitative and quantitative analysis of chemical substances by means of their spectra, see 07 02 Inorganic Chemistry and 07 03 Organic Chemistry. For photochemistry, see 07 05 Radio and Radiation Chemistry.

31, 83, 85, 91, 99, 105, 109, 115, 117, 123, 125, 193, 195, 197, 199, 245, 261, 281, 289, 433, 449, 473, 499, 503, 517, 519, 533, 593, 601, 605, 689, 693, 695, 699, 701, 703, 705, 719, 721, 723, 731, 803, 805, 807, 809, 811, 813, 817, 823, 853, 857, 859, 861, 863, 867, 901, 935, 937, 957, 991.

05 Radio and Radiation Chemistry

Chemistry of the effects of electromagnetic and particle radiation on matter. Chemistry of radioactive substances. Tracer studies. Includes photochemistry. See also 18 02 Isotopes and 18 08 Radioactivity.

45, 47, 83, 85, 91, 99, 103, 105, 109, 115, 117, 123, 125, 141, 175, 191, 199, 265, 303, 449, 499, 683, 685, 699, 703, 719, 853, 857, 859, 861, 863, 867, 877, 889, 937, 957.

08 EARTH SCIENCES AND OCEANOGRAPHY

01 Biological Oceanography

Marine plant and animal life as it relates to its environment.

85, 117, 507, 525, 527, 627, 635, 637, 681, 735, 749, 759, 769, 777, 781, 783, 811, 833, 847, 859, 897, 905, 925, 927, 935, 937, 941, 969, 971, 973.

02 Cartography

Mapping, photogrammetry, terrain models, etc.

147, 171, 175, 309, 777, 781, 783, 785, 787, 789, 833, 847, 853, 857, 859, 863, 897, 969, 971, 973, 975.

03 Dynamic Oceanography

Ocean waves, currents, tides, ocean-air interactions, etc. See also 08 10 Physical Oceanography.

95, 117, 143, 149, 153, 165, 167, 171, 467, 469, 777, 781, 783, 833, 845, 847, 859, 863, 871, 897, 925, 939, 969, 971, 973.

04 Geochemistry

Chemical composition of the earth's crust. For chemical analysis of extraterrestrial material, see 03 02 Astrophysics.

291, 363, 719, 721, 777, 781, 783, 847, 853, 867, 915, 935, 937, 939, 969, 971, 973.

05 Geodesy

Geodetic surveying. Determination of position of points on the earth's surface. Shape and size of the earth. Variations of terrestrial gravity.

147, 165, 173, 195, 309, 465, 777, 781, 783, 823, 833, 845, 847, 853, 857, 859, 867, 897, 915, 923, 939, 971.

06 Geography

Description of the physical features of the earth, the distribution of plants and animals. Includes political, economic, and commercial geography.

291, 309, 465, 777, 781, 783, 785, 787, 789, 847, 853, 927, 935, 941, 971, 973.

07 Geology and Mineralogy

Structures, properties, and classification of rocks, rock formations, and rock constituents. Mineralogy, paleontology, stratigraphy.

47, 117, 145, 691, 693, 705, 709, 713, 715, 721, 723, 725, 727, 731, 777, 779, 781, 783, 833, 847, 853, 863, 867, 897, 907, 915, 923, 925, 927, 935, 939, 971, 973.

08 Hydrology and Limnology

Properties, distribution, and circulation of water, including its surface and underground occurrence. Physical, chemical, and biological conditions in fresh water bodies. For water supply systems, see 13 02 Civil Engineering.

47, 85, 109, 117, 125, 159, 165, 311, 467, 501, 507, 525, 527, 751, 753, 761, 763, 777, 781, 783, 811, 813, 817,819, 833, 847, 897, 915, 927, 935, 937, 947, 951.

09 Mining Engineering

Location and evaluation of mineral deposits. Layout and equipment of mines. Mining operations.

551, 691, 709, 711, 713, 715, 717, 719, 727, 729, 777, 781, 783, 847.

10 Physical Oceanography

Physical and chemical properties of ocean water. Topography and composition of the ocean bottom. See also 08 03 Dynamic Oceanography.

117, 143, 159, 167, 465, 467, 469, 653, 663, 759, 769, 777, 781, 783, 833, 847, 897, 915, 923, 925, 927, 935, 941, 971, 973, 975.

11 Seismology

Detection, measurement, and recording of seismic phenomena. See also 17 10 Seismic Detection.

123, 145, 151, 165, 173, 229, 777, 781, 783, 863, 867, 905, 907, 925, 971, 973.

12 Snow, Ice, and Permafrost

Physical characteristics of snow, ice, and permanently frozen soil.

291, 403, 777, 781, 783, 905, 907, 915, 923, 927, 969, 971, 973.

13 Soil Mechanics

Physical properties and engineering aspects of soils. See also 08 12 Snow, Ice, and Permafrost.

3, 123, 193, 291, 293, 311, 363, 403, 717, 777, 781, 783, 833, 847, 859, 863, 867, 897, 955, 987.

14 Terrestrial Magnetism

Geomagnetic variations, field theory, magnetic moments, etc. See also 17 06 Magnetic Detection.

173, 777, 781, 783, 823, 833, 847, 853, 863, 867, 897, 905, 907, 925.

09 ELECTRONICS AND ELECTRICAL ENGINEERING

01 Components

Design and development of basic electrical and electronic components such as electron tubes, semiconductor devices, switches, connectors, etc. If the application of a component is apparent, see the Group where the application is treated.

85, 123, 193, 197, 229, 243, 249, 257, 303, 305, 317, 347, 379, 393, 401, 409, 449, 473, 845, 849, 853, 857, 859, 861, 865, 867, 889, 891, 899.

02 Computers

Design, development, and application of electronic computers and peripheral equipment. Includes analog, digital analog-digital, special-purpose, and general-purpose computers; computer accessories, supplies, and installation; computer software such as programs, programming languages, program generators, compilers, executive routines, and system evaluation. For fire control computers, see 19 05 Fire Control and Bombing Systems.

83, 85, 91, 95, 111, 115, 117, 125, 165, 189, 193, 229, 243, 249, 257, 267, 281, 303, 347, 389, 397, 401, 441, 449, 453, 455, 457, 465, 473, 477, 509, 593, 601, 823, 829, 833, 845, 849, 853, 855, 857, 859, 861, 863, 867, 871, 873, 875, 885, 897, 899, 901, 917, 1001, 1003, 1005, 1007.

03 Electronic and Electrical Engineering

Electronic systems, except those included in 17 Navigation Communications, Detection, and Countermeasures. Electrical systems. For ignition systems, see 21 Combustion and Ignition. For devices which produce electric power, see 10 02 Power Sources and 18 05 Nuclear Power Plants.

91, 95, 99, 111, 117, 165, 193, 195, 303, 305, 347, 393, 401, 409, 411, 457, 601, 731, 823, 833, 849, 853, 857, 859, 863, 865, 867, 875, 891, 897, 899, 931, 945, 947, 987.

04 Information Theory

Representation, uncertainty, noise, information content, information entropy, coding theory.

85, 123, 173, 193, 401, 823, 849, 853, 857, 859, 865, 891, 899.

05 Subsystems

Electrical and electronic devices which are composed of components, but which require other such devices to form complete systems. Includes amplifiers, antennas, etc. If the application of a subsystem is apparent, see the Group where the application is treated.

99, 117, 123, 193, 195, 197, 257, 303, 379, 393, 401, 409, 449, 823, 825, 833, 847, 849, 853, 857, 859, 863, 867, 873, 891, 897, 899, 901, 931.

06 Telemetry

Techniques and equipment, including transmitters, receivers, antennas, etc.

123, 165, 193, 195, 267, 303, 317, 347, 389, 397, 401, 435, 441,473, 823, 825, 833, 847, 849, 853, 855, 857, 859, 861, 863, 867, 871, 887, 891, 897, 899, 945, 947.

10 ENERGY CONVERSION (NON-PROPULSIVE)

01 Conversion Techniques

Techniques and devices for the conversion of one form of energy to a form of non-electrical energy, but which do not primarily involve energy storage. Excludes techniques and devices included in other Groups. General studies of energy conversion.

85, 123, 193, 215, 229, 303, 683, 685, 719, 721, 853, 859, 861, 867, 877.

02 Power Sources

Devices which supply electric power by energy conversion processes which do not primarily involve energy storage. Includes generators, converters, fuel cells, etc.

85, 123, 303, 317, 347, 409, 457, 731, 833, 839, 845, 853, 855, 857, 859, 861, 863, 867, 877, 895, 897, 899, 901.

03 Energy Storage

Techniques and devices for the storage and subsequent use of energy. Includes electrical batteries and battery components.

85, 111, 123, 197, 303, 317, 347, 409, 457, 833, 839, 853, 857, 859, 861, 863, 867, 875, 897, 899.

11 MATERIALS

01 Adhesives and Seals

Adhesives, glues, binders, etc. for all types of materials. Sealants, seals, and gaskets. For propellant binders, see 21 09.2 Solid Rocket Propellants.

85, 105, 193, 245, 327, 393, 605, 839, 853, 857, 859, 861, 863, 867, 899, 901, 931, 991.

02 Ceramics, Refractories, and Glasses

Ceramic materials, including glasses, brick, porcelain, tiles, etc. Non-metallic refractory materials. Cermets. For heat-resistant metals and alloys, see 11 06 Metallurgy and Metallography.

83, 85, 99, 105, 115, 117, 123, 193, 245, 327, 701, 705, 731, 823, 839, 853, 859, 861, 863, 867, 901, 987.

03 Coatings, Colorants, and Finishes

Paints, paint primers, varnishes. Plastic, rubber, ceramic, and metal coatings. Uses of dyes and pigments.

3, 41, 193, 245, 289, 293, 327, 393, 489, 693, 731, 823, 839, 853, 857, 859, 861, 863, 867, 899, 901, 931, 987, 991.

04 Composite Materials

Materials composed of two or more physically distinct constituents. For reinforced plastics, see 11 09 Plastics.

3, 85, 105, 117, 123, 193, 199, 245, 311, 327, 351, 379, 457, 489, 701, 719, 823, 839, 853, 859, 861, 863, 867, 901.

05 Fibers and Textiles

Natural and synthetic fibers, threads, yarns, and textiles. For metallic fibers, see 11 06 Metallurgy and Metallography.

193, 245, 327, 351, 405, 489, 839, 859, 863, 991.

06 Metallurgy and Metallography

Refining and production of metals and alloys. Microstructure, physical and mechanical properties, corrosion studies, etc. Heat-resistant metals and alloys. Includes extractive and physical metallurgy. For fabrication metallurgy, see 13 08 Industrial Processes. For metal coatings, see 11 03 Coatings, Colorants, and Finishes.

83, 85, 91, 99, 103, 105, 109, 115, 117, 123, 193, 245, 313, 327, 369, 379, 393, 449, 457, 489, 693, 695, 697, 699, 701, 703, 705, 707, 839, 853, 859, 861, 863, 867, 901.

07 Miscellaneous Materials

Materials not included in another Group, including leather, fur, and other animal products. Refrigerants, straw, waxes, etc.

21, 193, 199, 293, 327, 405, 489, 693, 721, 839, 863, 931, 987, 991.

08 Oils, Lubricants, and Hydraulic Fluids

Properties, performance, and production of all types of oils, lubricants, and hydraulic fluids.

193, 207, 245, 289, 313, 361, 719, 839, 853, 857, 861, 863, 867, 899, 901, 931.

09 Plastics

Properties, performance, and production of all types of plastics and resins, including reinforced plastics and laminates. For plastic coatings, see 11 03 Coatings, Colorants, and Finishes. For synthetic fibers and textiles, see 11 05 Fibers and Textiles.

3, 117, 123, 193, 199, 245, 327, 355, 405, 605, 823, 839, 853, 857, 859, 863, 867, 899, 901, 931.

10 Rubbers

Production, performance, and properties of natural and synthetic rubber and rubber products. Elastomers. For rubber coatings, see 11 03 Coatings, Colorants, and Finishes.

193, 199, 327, 361, 405, 489, 839, 857, 859, 863, 867, 899.

11 Solvents, Cleaners and Abrasives

Cleaning compositions, solvents, detergents, soaps, abrasives, etc.

289, 327, 703, 839, 857, 863, 867, 899, 901.

12 Wood and Paper Products

Wood, wood products, paper, cardboard, etc.

3, 63, 65, 67, 69, 71, 73, 75, 79, 193, 199, 327, 489.

12 MATHEMATICAL SCIENCES

01 Mathematics and Statistics

Mathematics and statistics research. For applied mathematics, see the Group where the application is treated.

83, 85, 87, 99, 115, 117, 123, 135, 141, 155, 197, 203, 215, 219, 261, 269, 281, 357, 401, 433, 449, 477, 593, 601, 605, 709, 725, 777, 781, 783, 853, 857, 859, 867, 985, 1001, 1003, 1005, 1007.

02 Operations Research

Theoretical operations research. For applied techniques, see the Group where the application is treated.

85, 193, 197, 203, 219, 223, 251, 261, 269, 281, 329, 357, 437, 477, 857, 867.

13 MECHANICAL, INDUSTRIAL, CIVIL, AND MARINE ENGINEERING

01 Air Conditioning, Heating, Lighting, and Ventilating

Air conditioning systems, refrigeration systems, cold storage systems. Heating systems, heat pumps, boilers, furnaces, radiators, condensers. Lighting systems.

3, 23, 57, 139, 193, 197, 293, 457, 857, 859, 867, 901, 947.

02 Civil Engineering

Water supply systems: well drilling, water collection, storage, treatment, distribution. Sanitary engineering: waste and sewage disposal, air and water pollution control. Flood control. Highway and traffic engineering. Urban planning and renewal. For the natural distribution and circulation of water, see 08 08 Hydrology and Limnology. For design and construction of structures, see 13 13 Structural Engineering.

3, 47, 49, 139, 141, 193, 293, 349, 403, 495, 501, 533, 539, 541, 543, 715, 721, 723, 731, 793, 795, 797, 799, 801, 803, 805, 807, 809, 811, 813, 815, 817, 819, 833, 857, 859, 867, 897, 901, 947, 953, 961, 987.

03 Construction Equipment, Materials and Supplies

Excavation and earth moving equipment, hoisting and conveying equipment, construction equipment. Building materials and supplies.

3, 293, 349, 403, 715, 857, 875, 901, 955.

04 Containers and Packaging

Design, production, performance, and testing of containers. Packaging methods. Storage tanks and accessories.

33, 35, 49, 57, 349, 351, 857, 859, 867, 931.

05 Couplings, Fasteners, and Joints

Design, performance, and testing of bolts, screws, studs, rivets, hooks, couplings, and fittings. Bonded, soldered, and welded joints, etc. For electrical connectors, see 09 01 Components. For pipe fittings, see 13 11 Pumps, Filters, Pipes, Tubing, and Valves.

197, 839, 853, 857, 859, 863, 867.

06 Ground Transportation Equipment

Design, operation, performance, and maintenance of amphibious vehicles, cargo vehicles, passenger vehicles, automotive parts and equipment, and railroad equipment. For armored vehicles designed specifically for combat, see 19 03 Combat Vehicles.

57, 123, 193, 349, 401, 515, 857, 859, 867, 875, 931.

07 Hydraulic and Pneumatic Equipment

Design, production, performance, and testing of hydraulic and pneumatic systems. Accumulators, distribution equipment, actuators, controls, and components.

123, 237, 349, 381, 457, 839, 857, 859, 863, 867, 899, 901, 947.

08 Industrial Processes

Production control, quality control, plant design, inspection. Fabrication cleaning and finishing, etc. of industrial materials. Includes fabrication metallurgy: casting, forging, drawing, electroforming, extrusion, machining, rolling, stamping, spinning, welding. For food processing, see 06 08 Food.

123, 193, 355, 361, 363, 369, 793, 795, 797, 799, 801, 839, 857, 859, 867, 899, 931.

09 Machinery and Tools

Machines and machine elements, including bearings, clutches, drives, gears, cams, springs, etc. Metalworking tools, woodworking tools, dies, jigs, etc.

197, 355, 361, 363, 369, 829, 857, 859, 867, 899, 931, 947.

10 Marine Engineering

Design, construction, maintenance, salvage, operation, and performance of all types of ships, boats, and marine equipment. For submarines, see 13 10.1 Submarine Engineering.

387, 401, 453, 457, 643, 645, 647, 649, 673.

10.1 Submarine Engineering

Design, construction, maintenance, salvage, operation, and performance of submarines and submarine equipment. See also 19 08 Underwater Ordnance.

401.

11 Pumps, Filters, Pipes, Tubing and Valves

Design, construction, operation and performance of all types of pumps, filters, pipes and pipe fittings and valves.

457, 793, 795, 797, 799, 801, 857, 859, 867, 899, 901.

12 Safety Engineering

Accident prevention, safety devices, fire-fighting equipment, fire-detection equipment. For protective equipment, see 06 17 Protective Equipment.

3, 109, 123, 193, 729, 833, 839, 857, 859, 863, 867, 897, 899, 901, 977.

13 Structural Engineering

Design and construction of structures such as buildings, bridges, dams, etc. See also 13 02 Civil Engineering and 13 03 Construction Equipment, Materials, and Supplies.

3, 111, 123, 145, 151, 193, 197, 293, 311, 351, 403, 731, 833, 857, 867, 897, 899, 901, 947.

14 METHODS AND EQUIPMENT

01 Cost Effectiveness

Examination and selection of equipment, materials, personnel, etc. for optimum performance of given tasks. Cost-benefit analysis, tradeoff factors, etc. See also 05 01 Administration and Management and 12 02 Operations Research.

35, 49, 57, 85, 193, 203, 219, 251, 275, 279, 297, 299, 305, 315, 329, 357, 365, 371, 373, 401, 839, 857, 859, 867, 875, 901.

02 Laboratories, Test Faciltties, and Test Equipment

Laboratory and test facility design and operation. Measuring, testing, and simulation devices with apparent application in more than one Group. For such devices with apparent application in one Group, see the Group.

3, 35, 49, 83, 123, 131, 141, 189, 193, 197, 217, 225, 231, 239, 247, 255, 263, 267, 275, 279, 297, 299, 305, 315, 365, 371, 373, 377, 383, 385, 387, 397, 411, 429, 435, 439, 441, 475, 483, 515, 833, 847, 855, 857, 859, 867, 871, 875, 897, 901, 931, 937.

03 Recording Devices

Techniques and devices for electrical recording. Includes disk, magnetic, electrostatic, etc. For photographic recording, see 14 05 Reprography.

189, 193, 371, 853, 857, 859, 867, 871, 875, 901.

04 Reliability

Determination of the probability of satisfactory performance of components and equipment. Prevention and correction of malfunctions.

35, 49, 105, 109, 123, 197, 217, 225, 231, 239, 247, 263, 267, 275, 279, 297, 299, 305, 315, 365, 371, 373, 377, 383, 385, 387, 397, 401, 411, 429, 435, 439, 441, 475, 833, 839, 853, 857, 859, 867, 871, 875, 897, 901.

05 Reprography

Photographic techniques, equipment, and materials. Reproduction techniques. Printing and graphic arts. For photogrammetry, see 08 02 Cartography.

137, 189, 197, 315, 847, 857, 859, 863, 901, 991.

15 MILITARY SCIENCES

01 Antisubmarine Warfare

Operations conducted against submarines. For submarine detection techniques, see 17 Navigation, Communications, Detection and Countermeasures.

379, 389, 401, 433, 437, 467, 469, 471, 473, 477.

02 Chemical, Biological, and Radiological Warfare

Development and utilization of lethal and non-lethal chemical agents, biological agents, and radiological weapons. Detection, decontamination, protective equipment, etc. CBR ordnance items, such as bombs, projectiles, and rockets. For CBR guided missile warheads, see 16 03 Missile Warheads and Fuzes. For nuclear weapons, see 15 06 Nuclear Warfare.

217, 223, 275, 285, 297, 301, 393, 431, 477, 599.

03 Defense

Active and passive systems for military and civil defense. Antiaircraft and antisatellite defense systems. For antimissile defense systems, see 15 03.1 Antimissile Defense.

193, 195, 253, 401, 429, 433, 473, 859.

03.1 Antimissile Defense

Techniques and equipment for the interception and destruction of guided missiles.

347, 859.

04 Intelligence

Techniques for collecting, evaluating, and disseminating information concerning foreign nations needed for purposes of national security.

195, 401, 451.

05 Logistics

Procurement, storage, distribution, and reclamation of equipment and supplies. Design and testing of personal equipment, such as clothing, field gear, etc. Transportation. Industrial mobilization. For protective clothing, see 06 17 Protective Equipment.

203, 315, 357, 377, 3 5, 401.

06 Nuclear Warfare

Development and utilization of nuclear weapons. Studies of the physical and physiological effects of nuclear weapons. For nuclear guided missile warheads, see 16 03 Missile Warheads and Fuzes. For radiological weapons, see 15 02 Chemical, Biological, and Radiological Warfare.

101, 103, 105, 115, 123, 263, 265, 275, 353, 391, 447, 475.

07 Operations, Strategy, and Tactics

Joint and combined operations. Campaigns, battles, invasions, theater operations, etc. Methods of attack and support. Types of warfare. See also 15 01 Antisubmarine Warfare; 15 02 Chemical, Biological, and Radiological Warfare; and 15 06 Nuclear Warfare.

203, 253, 351, 357, 389, 401, 859.

16 MISSILE TECHNOLOGY

01 Missile Launching and Ground Support

Missile handling and launching, including transportation; storage; preparation for launching; surface, aircraft, or underwater launching. Launching equipment, checkout equipment, and ground support equipment.

217, 231, 247, 267, 347, 371, 389, 429, 435, 441, 473, 477, 833, 853, 857, 859, 871, 887, 897, 899.

02 Missile Trajectories

Determination, analysis, and processing of missile trajectory data. Flight path analysis, impact prediction, etc. Operational aerodynamic studies, including reentry.

231, 243, 247, 267, 281, 347, 371, 389, 433, 435, 441, 473, 477, 833, 853, 857, 859, 887, 897, 899.

03 Missile Warheads and Fuzes

Design and performance of all warhead types, including explosive, chemical, biological, and nuclear. Missile fuzes of all types.

123, 317, 347, 389, 433, 473.

04 Missiles

General missile theory, design, construction, performance, and components. Damage assessment and vulnerability studies. For specific missile types, see 16 04.1 Air- and Space-Launched Missiles, 16 04.2 Surface-Launched Missiles, and 16 04.3 Underwater-Launched Missiles.

209, 223, 225, 243, 347, 389, 401, 433, 473, 823, 853, 857, 859, 887, 899.

04.1 Air- and Space-Launched Missiles

Theory, design, construction, performance, and components. Damage assessment and vulnerability studies.

223, 429, 473, 823, 859, 871, 901.

04.2 Surface-Launched Missiles

Theory, design, construction, performance, and components. Damage assessment and vulnerability studies.

823, 857, 859, 871, 899.

04.3 Underwater-Launched Missiles

Theory, design, construction, performance, and components. Damage assessment and vulnerability studies.

899.

17 NAVIGATION, COMMUNICATIONS, DETECTION AND COUNTERMEASURES

01 Acoustic Detection

Detection by means of acoustic waves, including ultrasonic and infrasonic radiation. See also 17 10 Seismic Detection.

123, 185, 197, 349, 379, 391, 393, 397, 401, 409, 437, 453, 455, 467, 469, 833, 849, 857, 859, 865, 867, 891, 897, 899.

02 Communications

Communication by wire or electromagnetic waves other than radio waves. For communication by radio waves, see 17 02.1 Radio Communications.

189, 193, 227, 229, 233, 249, 257, 303, 325, 393, 401, 409, 411, 469, 823, 833, 853, 857, 859, 865, 867, 873, 891, 897, 899, 979, 985.

02.1 Radio Communications

Communication by radio waves.

173, 195, 233, 243, 303, 325, 409, 483, 823, 833, 837, 853, 855, 857, 859, 863, 865, 867, 873, 891, 897, 899, 945, 947, 979.

03 Direction Finding

Determination of the direction of arrival of signals.

173, 257, 823, 833, 853, 857, 859, 865, 867, 891, 897, 899, 965.

04 Electromagnetic and Acoustic Countermeasures

Interception, jamming and antijamming, and deception of acoustic and electromagnetic signals.

195, 227, 257, 303, 305, 379, 401, 437, 455, 467, 469, 823, 857, 899.

05 Infrared and Ultraviolet Detection

Detection by measurement of infrared or ultraviolet radiation. For infrared photography, see 14 05 Reprography.

137, 189, 195, 197, 303, 349, 473, 823, 833, 845, 849, 853, 859, 865, 867, 891, 897.

06 Magnetic Detection

Detection by measurement of a magnetic field.

349, 433, 455, 833, 853, 857, 865, 867, 891, 897, 899.

07 Navigation and Guidance

Techniques for navigation and guidance. Includes air traffic control systems, controlled-approach systems, and instrument landing systems.

165, 189, 195, 197, 227, 325, 387, 389, 393, 411, 455, 459, 473, 823, 829, 833, 845, 849, 853, 855, 857, 859, 863, 867, 887, 897, 899, 965, 967, 983.

08 Optical Detection

Detection by means of light. Includes such optical instruments as binoculars and periscopes. See also 17 05 Infrared and Ultraviolet Detection.

325, 349, 455, 469, 833, 849, 853, 857, 859, 865, 891, 897, 899.

09 Radar Detection

Detection by means of transmitted and reflected radiofrequency waves.

163, 173, 195, 227, 249, 257, 303, 349, 389, 411, 473, 833, 853, 857, 859, 865, 867, 891, 897, 899, 965.

10 Seismic Detection

Detection by measurement of seismic waves.

123, 151, 229, 349, 857, 867, 899.

18 NUCLEAR SCIENCE AND TECHNOLOGY

01 Fusion Devices (Thermonuclear)

Theory, design, construction, and operation of devices for producing controlled thermonuclear fusion reactions.

85, 101, 105, 115, 119, 263, 265, 301.

02 Isotopes

Separation or concentration of isotopes. Industrial and medical applications. For isotopic SNAP applications, see 18 14 SNAP Technology. See also 07 05 Radio and Radiation Chemistry.

85, 91, 105, 115, 117, 125, 199, 301, 537, 853, 867, 947, 999.

03 Nuclear Explosions

Explosion effects such as shock waves and earth movement. Testing of nuclear devices. Peaceful applications, such as Plowshare. For military applications of nuclear explosions, see 15 06 Nuclear Warfare.

101, 115, 123, 263, 265, 317, 391, 447, 475, 535, 547.

04 Nuclear Instrumentation

Radiation detection devices and associated equipment. For dosimeters, see 06 18 Radiobiology.

85, 91, 95, 97, 99, 111, 117, 125, 191, 265, 353, 447, 523, 535, 545, 547, 555, 853, 861, 863, 867, 875, 877, 889, 947.

05 Nuclear Power Plants

Integrated assemblage, including reactor and turbogenerator equipment, plus control and regulatory devices. Includes mobile as well as stationary power plants. See also 18 12 Reactors (Power) and 18 14 SNAP Technology.

85, 89, 91, 97, 109, 115, 307, 523, 535, 545, 547, 857.

06 Radiation Shielding and Protection

Shielding design, isodose plots, materials transmission and absorption studies, safety devices, decontamination, etc. See also 06 17 Protective Equipment.

85, 89, 95, 97, 99, 105, 111, 115, 117, 123, 125, 191, 265, 307, 353, 447, 497, 555, 853, 861, 867, 875, 877, 889.

07 Radioactive Wastes and Fission Products

Separation, processing, handling, storage, and disposal. Fission product utilization. See also 18 02 Isotopes.

85, 91, 105, 109, 111, 115, 117, 125, 861, 875, 877.

08 Radioactivity

Radioactive decay, natural and induced radioactivity, interaction of charged particles and radiation with matter, radioactive fallout. See also 07 05 Radio and Radiation Chemistry and 20 08 Particle Physics.

83, 85, 91, 95, 99, 105, 109, 111, 115, 117, 141, 191, 263, 265, 317, 447, 523, 535, 537, 545, 547, 853, 861, 863, 867, 875, 877, 889.

09 Reactor Engineering and Operation

Engineering related directly to the design or operation of a specific reactor or reactor type.

83, 85, 89, 91, 97, 109, 111, 115, 117, 125, 191, 307, 535, 861, 867, 875, 877.

10 Reactor Materials

Production, testing, or reclamation of fuel materials, coolants, moderators, control materials, structural materials, and shielding materials. Includes fabricated elements or assemblies and specific configurations.

85, 89, 97, 109, 111, 115, 117, 125, 191, 523, 545, 547, 861, 867, 875, 877.

11 Reactor Physics

Reactor kinetics, reactor theory, criticality and neutron thermalization, scattering, slowing down economy, etc. Includes the use of reactor simulators or computers.

85, 89, 91, 97, 109, 111, 115, 125, 861, 867, 875, 877.

12 Reactors (Power)

Design, construction, operation, etc., of reactors used as energy sources for electric power generation. See also 18 05 Nuclear Power Plants and 18 14 SNAP Technology.

85, 89, 115, 307, 853, 861, 867, 877.

13 Reactors (Non-Power)

Reactors designed and built for purposes other than for electric power or propulsion. Includes production research and training, test, and process heat types.

85, 91, 103, 115, 117, 317, 861, 867, 877.

14 SNAP Technology

Systems for Nuclear Auxiliary Power, both isotopic and reactor.

105, 115, 123, 125, 853, 855, 857, 861, 867.

19 ORDNANCE

01 Ammunition, Explosives, and Pyrotechnics

Projectiles, fuzes, demolition explosives, detonators, grenades, land mines, high explosives, primers, powder propellants, ammunition shaped charges, flame throwers, ammunition handling equipment, etc. Production, performance, stability in storage, etc., of incendiaries, pyrotechnics, screening agents and smokes, etc. For CBR ordnance items, see 15 02 Chemical, Biological, and Radiological Warfare. For nuclear weapons, see 15 06 Nuclear Warfare. For guided missile ordnance items, see 16 03 Missile Warheads and Fuzes.

103, 105, 117, 123, 217, 223, 299, 301, 305, 313, 317, 325, 349, 355, 365, 373, 391, 413, 433, 473, 477, 833, 857, 859, 897, 899, 957.

02 Bombs

High-explosive, fragmentation, anti-personnel, armor-piercing, general-purpose, etc. Bomb handling equipment. For CBR bombs, see 15 02 Chemical, Biological, and Radiological Warfare.

217, 223, 231, 299, 301, 325, 355, 373, 385, 401, 413.

03 Combat Vehicles

Armored wheeled and track-laying vehicles for both cargo and personnel. Heavy, light, and medium tanks. Tank chassis used as gun carriers, their components and accessories.

275, 299, 305, 325, 363, 365, 373.

04 Explosions, Ballistics, and Armor

Explosion effects such as blast, heat, earth movement, etc. Ballistics. Armor plate, body armor, etc. For the effects of nuclear explosions, see 18 03 Nuclear Explosions. For interior ballistics, see 19 06 Guns.

123, 217, 223, 299, 317, 325, 351, 361, 365, 373, 391, 413, 433, 473.

05 Fire Control and Bombing Systems

Computers, sights, directors, range finders, gun-laying and bombing radar systems, bomb releases, and other devices used to direct the firing of a weapon.

123, 217, 223, 275, 299, 305, 313, 325, 361, 373, 385, 433, 435, 471, 473.

06 Guns

Small arms, automatic weapons, recoilless weapons, mortars, artillery and naval guns, their components, accessories, and interior ballistics. Gun carriages, gun mounts, remote control equipment, etc.

217, 223, 231, 275, 299, 325, 361, 365, 369, 373, 401, 833, 897.

07 Rockets

Rocket-propelled weapons, including aircraft, large caliber, and shoulder-fired rockets. Launching devices. For CBR rockets, see 15 02 Chemical, Biological, and Radiological Warfare.

217, 299, 347, 355, 373, 385, 429, 473, 833, 859, 897.

08 Underwater Ordnance

Torpedoes, submarine mines, depth charges, hydro-bombs, etc. Launching devices and countermeasures.

397, 401, 413, 433, 437, 439, 455, 467, 471.

20 PHYSICS

01 Acoustics

Generation and propagation of acoustic waves, including ultrasonic and infrasonic radiation.

117, 141, 173, 185, 193, 197, 379, 391, 397, 433, 449, 453, 467, 823, 853, 857, 859, 863, 867.

02 Crystallography

Structure and properties of crystalline forms.

21, 41, 49, 59, 85, 91, 99, 109, 115, 117, 193, 199, 245, 693, 723, 777, 781, 783, 853, 859, 861, 863, 867, 935, 957.

03 Electricity and Magnetism

Theory of electrical and magnetic phenomena.

91, 99, 117, 123, 151, 163, 193, 195, 197, 199, 433, 449, 455, 457, 693, 723, 823, 853, 859, 863, 867, 939.

04 Fluid Mechanics

Theoretical and experimental studies of the dynamics and statics of fluids, including aerodynamics and hydrodynamics. For operational applications, see 01 01 Aerodynamics; 16 02 Missile Trajectories; and 22 03 Spacecraft Trajectories and Reentry. See also 20 09 Plasma Physics.

47, 109, 117, 123, 149, 195, 197, 215, 313, 317, 449, 453, 689, 731, 777, 781, 783, 823, 849, 853, 857, 859, 861, 863, 867, 899, 947, 987.

05 Masers and Lasers

Devices which amplify electromagnetic waves by stimulated emission of radiation. Includes irasers, uvasers, etc.

117, 123, 195, 199, 227, 229, 313, 449, 497, 823, 833, 845, 853, 859, 867, 891, 897, 939.

06 Optics

Generation and propagation of electromagnetic waves in the infrared, visible, and ultraviolet regions of the spectrum. Techniques and design of optical equipment for mass spectroscopy. For identification of specific chemical substances by means of their spectra, see 07 Chemistry. For spectroscopy applied to atomic and molecular structure, see 07 04 Physical Chemistry. For astronomical spectroscopy, see 03 02 Astrophysics. For electron optics, see 20 08 Particle Physics. For microwave optics, see 20 14 Wave Propagation.

115, 117, 123, 173, 193, 197, 199, 497, 503, 689, 823, 833, 851, 853, 857, 859, 863, 867, 897, 899, 931, 937, 939.

07 Particle Accelerators

Design and operation of betatrons, cyclotrons, synchrotrons, etc.

83, 85, 91, 93, 99, 107, 115, 121, 127, 191, 215, 449, 851, 853, 861, 867, 889.

08 Particle Physics

Properties and reactions of elementary particles. Nuclear reactions. Gamma rays, x rays. For atomic and molecular structure and spectra, see 07 04 Physical Chemistry.

83, 85, 91, 93, 99, 103, 105, 107, 109, 115, 117, 121, 123, 127, 173, 191, 195, 197, 215, 281, 449, 497, 611, 851, 853, 859, 863, 867, 889, 921, 939, 993.

09 Plasma Physics

Properties and actions of plasmas, including magnetohydrodynamics, pinch effect, plasma oscillations, plasma jets, etc. See also 20 04 Fluid Mechanics.

85, 99, 103, 115, 119, 123, 173, 195, 197, 215, 449, 683, 823, 845, 853, 859, 861, 863, 867.

10 Quantum Theory

Relativistic and nonrelativistic quantum theory, relativity theory, quantum mechanics and quantum statistics.

91, 99, 105, 117, 199, 853, 857, 859, 867, 899.

11 Solid Mechanics

Dynamics and statics of solid bodies. Structural mechanics, kinetics, kinematics, equilibria, stress analysis, buckling, elasticity, plasticity, vibrations, shock and vibration, etc.

115, 117, 123, 193, 197, 243, 281, 723, 839, 849, 853, 857, 859, 863, 867, 899, 917.

12 Solid State Physics

Structure and properties of solids, except those included in 20 02 Crystallography and 11 06 Metallurgy and Metallography. Properties of solids at cryogenic temperatures. Includes fundamental research and theoretical studies of semiconductors.

83, 85, 91, 99, 115, 117, 123, 191, 195, 197, 199, 215, 243, 245, 281, 449, 683, 693, 701, 731, 823, 845, 853, 857, 859, 861, 867, 899.

13 Thermodynamics

Thermodynamic theory: equations of state, free energy, enthalpy, entropy, thermodynamic cycles, etc. Heat transfer, including methods for determining thermal radiation properties of materials. Low-temperature phenomena. For properties of solids at cryogenic temperatures, see 20 12 Solid State Physics.

35, 49, 85, 91, 99, 105, 117, 123, 193, 195, 197, 199, 449, 589, 701, 719, 823, 853, 857, 859, 861, 867, 899, 917.

14 Wave propagation

Propagation of radiofrequency waves. Includes microwave optics.

123, 173, 195, 257, 317, 449, 483, 497, 523, 545, 547, 823, 827, 845, 851, 853, 857, 859, 863, 867, 899, 939.

21 PROPULSION AND FUELS

01 Air-Breathing Engines

Advanced engines which use ingested air to oxidize their fuel, e. g., the liquid air cycle engine (LACE). For conventional air-breathing engines, see 21 05 Jet and Gas Turbine Engines and 21 07 Reciprocating Engines.

237, 255, 277, 383, 401, 515, 849, 857, 859, 899.

02 Combustion and Ignition

Combustion and flame studies. Ignition and ignition systems.

193, 207, 363, 383, 401, 515, 533, 683, 685, 687, 723, 857, 859, 861, 863, 867, 877, 899, 901.

03 Electric Propulsion

All types of engines deriving power from free ions or electrons. Ion, plasma, and arc-jet engines.

207, 401, 471, 833, 855, 857, 859, 861, 867, 897, 899.

04 Fuels

Production, performance, storage, etc. of all types of fuels except those used in rocket engines.

207, 255, 401, 719, 721, 725, 823, 857, 861, 899, 901.

05 Jet and Gas Turbine Engines

All types of jet and gas turbine engines, including hydroduct, turboprop, etc.

207, 277, 383, 401, 515, 719, 859, 861, 877.

06 Nuclear Propulsion

Nuclear devices for marine, ground, air, and space propulsion.

103, 115, 193, 401, 857, 861, 867, 877, 899.

07 Reciprocating Engines

Reciprocating engines of various configurations for all types of propulsion.

207, 277, 401, 515, 719, 863.

08 Rocket Motors and Engines

General studies of rocket motors and propulsion hardware. Gaseous, thixotropic, and hybrid rocket motors. See also 21 08.1 Liquid Rocket Motors and 21 08.2 Solid Rocket Motors.

225, 255, 347, 401, 473, 833, 843, 853, 855, 857, 859, 861, 867, 877, 887, 897, 899, 901.

08.1 Liquid Rocket Motors

Studies of liquid rocket motors and propulsion hardware.

255, 401, 833, 843, 855, 857, 861, 865, 867, 871, 877, 897, 899, 901.

08.2 Solid Rocket Motors

Studies of solid rocket motors and propulsion hardware.

255, 401, 833, 843, 855, 857, 859, 861, 867, 877, 897, 899.

09 Rocket Propellants

Chemical rocket propellants and propellant combinations other than all-liquid or all-solid propellants. Includes production, handling, performance, etc.

255, 347, 401, 833, 843, 855, 857, 859, 861, 867, 877, 897, 899, 901.

09.1 Liquid Rocket Propellants

Production, handling, performance, etc. of all-liquid rocket propellants, including fuels, oxidizers, etc.

195, 255, 401, 833, 843, 855, 857, 861, 863, 867, 871, 877, 897, 899, 901.

09.2 Solid Rocket Propellants

Production, handling, performance, etc. of all-solid rocket propellants, including fuels, oxidizers, additives, binders, etc.

255, 401, 833, 843, 855, 857, 859, 861, 867, 877, 897, 899.

22 SPACE TECHNOLOGY

01 Astronautics

Oribital rendezvous, space exploration, operations in space, spacecraft operating problems, etc.

209, 231 459, 477, 823, 833, 839, 853, 855, 857, 859, 863, 867, 887, 897, 901, 939.

02 Spacecraft

Design and construction of spacecraft, including satellites, space probes, space capsules, spaceships, space stations, aerospace planes, and their components. Spacecraft damage assessment and vulnerability studies.

123, 173, 179, 193, 237, 389, 401, 823, 833, 839, 845, 849, 853, 855, 857, 859, 861, 863, 867, 873, 887, 889, 897, 899, 901, 935.

03 Spacecraft Trajectories and Reentry

Determination, analysis, processing, etc. of spacecraft trajectory data. Orbital calculations, flight path analysis, reentry, space mechanics, etc.

247 823, 833, 837, 845, 849, 853, 855, 857, 859, 861, 863, 865, 867, 887, 891, 897, 899, 939.

04 Spacecraft Launch Vehicles and Ground Support

Handling and launching, including transportation, storage, preparation for launching, and countdown. Launching equipment, checkout equipment, and ground support equipment.

231, 823, 831, 833, 835, 839, 841, 853, 855, 857, 859, 861, 865, 867, 869, 871, 877, 879, 881, 883, 887, 891, 893, 897, 899, 901, 939.

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